FLEET OPERATORS' REFERENCE ANNUAL

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS
APRIL 1943

Ziggest Job



of all time!



America's Toughest Truck Bufore any cargo ship imbarks for a distant front, much behind-the-acene transportation takes places delivery of raw materials to manufactural to movement of parts and sub-estimation from one plant to another. I have also been factory warehouse to treight depot at piercy link vital, incorpersable, in the long chain of transportation.

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Stone's Express, Inc., operates in New York City and New England, serving over two hundred communities. 81% of the freight hauled is war material moving from one industry to another or enroute to Atlantic shipping points. Reo Trucks in this service are setting new high marks in performance and economy.



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CAR JOURNAL

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SERVICE

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INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicogo, Illinois



INTERNATIONAL TRUCKS

1943 FLEET OPERATORS' REFERENCE ANNUAL



A year has passed since the last edition of this reference annual was published. In that time, as truck operators well know, the task of keeping vehicles rolling has become progressively more difficult. But no matter how difficult, the job must be done—and done with maximum efficiency—because the nation depends upon highway transport to maintain an unimpaired record of achievement until victory is won. Under the circumstances this edition assumes an importance far in excess of its predecessors. In its revised form, operators will find it a practical product tailored to their special needs in effecting vehicle, parts and manpower conservation. The cooperation of manufacturers is gratefully acknowledged. Together we'll "Keep 'em Rolling."

K E E P ' E M C O M M E R C I A L

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ROLLING

CAR JOURNAL

KEEP 'EM ROLLING 1943 FLEET OPERATORS'

REFERENCE ANNUAL

Correct front-end alignment at all times results in safety and economy of operation. During war time such factors as conservation of vital materials and the necessity of keeping essential transportation rolling provide additional important reasons why alignment should be checked and adjusted periodically to the engineered standards. The data provided in these tables are supplied by the respective truck manufacturers. Adjustments made to these specifications will assure maximum performance and conservation of vital parts of the steering control. Tire mileage also will show great improvement. Correct front-end alignment at



FRONT END

DO

F

TRUCK MAKES AND MODELS	TOE-IN (in inches unless otherwise shown)	CAMBER (In degrees	CASTER (In dogrees)	KING PIN SLANT (In degrees)	TRUCK MAKES AND MODELS	TOE-IN (In inches unless otherwise shown)	CAMBER (In degrees	CASTER (In degrees)	KING PIN SLANT
UTOCAR RG, RH, RHT, 6RH, UT, UNF, UTT, UNFT (1935-36) D, 9T, 6D, UDT, 6UDF, RHD (1935-36) DF, DFT, DBF, DH, S (1935-36) N (1938-36) NT, DP (1935-36) NF, 6N (1935-36) NFT (1935-36) NFT (1935-36) TT, UDP (1935); T, 6T, UDFT, UNT, TT, UDF (1936) UDF (1935-36) UN (1935-36) UN (1935-36) UN (1935-36) UN (1935-36) UN, UD, UD, UNF (1936) TF, 6TF (1936) TF, 6TF (1936) TF, 6TF (1936) C (1935-36) 6X2RL (1937) RM, RL, RLD (1937); A, 6X2PL (1938) D, 2TR, 3TR, 4TR, 6X2DF (1937); D, 3TR (1937-36); 4TR, RLD, 6X4DF (1933) UD (1937); RT, 4TR, 6X2DF (1937); D, 3TR (1937-36); 4TR, RLD, 6X4DF (1933) UD (1937); RMT, 1TR, UD, 6X2UD (1938) DF, DP (1937-38) UD (1937); NF, 5UTR (1937-38) TH (1937) 6X2UD (1937); NF, 5UTR (1937-38) T (1937) CX2UNF (1937) UN, UT (1937-38); UNF, UDP, 6X2UNF, 6	0-14	1	236 134	8	AUTOCAR—Cont. U10T, U20T, U30T, U40T, U40D, U7062, C80, C8062, C80, C9062 (1940-43)	0.1/	1	N1/2-1P	
DF, DFT, 8DF, DH, 8 (1935-36) N (1938-36) NT, DP (1935-36)	0-14 0-14 0-14	1	124 124 124 124 124 125	8 8 8	C80, C9022 (1940-43) U30, U40 (1940-43) C60T, C70T, C80T, C90T (1940-43) C7044, C8044, C9044, DC10044 (1940-43) DC100D, DC10064, DC10082, DU10082, DU10084 (1940-42) C40T, C50D, C50T (1940-42) C40T (1943)	0-14 0-14 0-14 1-8T	1 1 0	N14-114 P 1 -2 3 -6	8 8
NF, 6N (1935-36)	0-14	1	13	8	DC100D, DC10084, DC10082, DU10082, DU10084		-		
T, 6T, UDFT, UNT, 6NF (1935); 6NF (1936)	0-14	1	13%	8	C40T, C50D, C50T (1940-42)	0-14 0-14 0-14 0-14 0-14 0-14	i	Z1/2-N11/2 0-11/2	8
UDF (1935-36)	0-14	1	134-234	8	U90T (1943)	0-14	1	1-2 0-1	8
JN (1935-36) JNFT, 8UN (1935-36)	0-14	1	31/4 23/4 3/4 N	8	U90T (1943) DC100T (1940-43) C50, U50 (1940-42) C8044 (1940-42) DC100D, DC10082, DC10084 (1943) U80T, U70T, DC100T (1941-43) U80T (1941-43)	0-14	N. Car	1/2-11/2 N1/4-11/4 P	8 8
BUT (1935-36)	0-14	1	14N	8	C8044 (1940-42)	1/8T	0	21/0-05	I 0
JD, 6UD, US, UNF (1936)	0-14	1	21/4	8	U60T, U70T, DC100T (1941-43)	0-14 0-14 0-14	1	N21/2-1N 1/2-11/2 0 -1	8
FFT (1936)	0-14	1	34-1N	8	BANTAM 60		1		
IX2RL (1937) RM, RL, RLD (1937): A, 6X2RL (1938)	0-14	1	21/4 1/2N 3/4-1N 21/4 21/4-21/2 2 -21/4	8	BANTAM 60	16-18	11/4	11 15	1
D, 2TR, 3TR, 4TR, 6X2DF (1937); D, 3TR (1938)	0-14	1	2 -21/4	8		7.00	1		
RLD, 6X4DF (1938)	0-14	1	2	8	80, 90 (1932-33)	16-1/8	2	1 -2	1
D (1937); RMT, 1TR, UD, 6X2UD (1938)	0-14	1	2 134-2 134-2 134-134 134-134 134-134 134-134 134-134 134-134 134-134 134-134	8	BROCKWAY 80, 90 (1932-33); 100, 150 (1933); 90X, 96, 110, 125X, 130, 145, 150X4, 150X5 (1935). 141, 170, 196, 220 (1930-33); 160, 260 (1932-33); 160X, 165X, 190X (1933-41); 162, 166, 170X, 175X, 195X, 220X, 240X, 260X (1933-42), 267, V1200 (1935-36); 125X, 130, 145, 150X4, 150X5, 96, 110 (1936-41); 78, 83, 89, 82, 94, 112, 128, 146, 147, 152, 153, 154, 156 (1936-42).	16-1/8	1	1 -2	1
TR (1937) X2UD (1937); 4UTR (1937-38); DH (1938)	0-14	1	114-2	8	141, 170, 195, 220 (1930-33); 160, 260 (1932-33); 160X, 165X, 190X (1935-41); 162, 166, 170X, 175X, 195X.		14.5		
(1937-38)	0-14	1	11/2-13/2	8	220X, 240X, 260X (1935-42) 87, V1200 (1935-36) • 125X, 130, 145, 150X4, 150X5, 96	16-1/8	2	1 -2	(
(1937)	0-14	1	12-1	8	110 (1936-41); 78, 83, 88, 92, 94, 112, 128, 148, 147,				
X2NF (1937-38); 8X410 (1938)	0-14	1	34-34	8		16-1/8	1	1 -2	1
GP (1937)	0-14	1	0 - 14	8	CHEVROLET 3/4-Ton (1935-42); 3/4-Ton (1937-42)	4-1/8	16-11	6 114-214	7
X2UNF (1937)	0-14	1	0 - 1/4 N1/4- 1/4	8	1935-42	#4-1/8 #-1/8	14-11	11/4-21/4 11/4-21/4 21/4-31/4 21/4-31/4	7 7 7
JN, UT (1937-38); UNF, UDP, 6X2UN, 6X2UNF,	074		11160	8	1½-Ton C.O.E. (1940-42)	1/8	14-11	234-334	
UDF. 6X2UN (1937); UDF, US, 6X4TD, 6X4UTO,	0-1/4	1	N14-0		CORBITT All 2-wheel drive (1936-38)	14-36	1	13/6-23/6	1
6X4UTD (1938)	0-1/4	1	N1/4 2 -21/4	8	CORBITT All 2-wheel drive (1936-38)	18-14	1 0	11/2-21/2 2 -31/2 76 -7	
TR, 6X2DF (1938)	0-14	1	134-214	8	DIAMOND T		1	Market .	
JB (1938)	0-14	1	114-24	8	210, 211, 226	1/8	1.8	134 234 214 214	1
A, B, RL, RB (1939); C10, C20, C30, C40 (1940-43)	0-14	1	2 -214 194-214 114-215 114-216 34-114 N14-114	8	241, 261 311, 326B, 325DR, 361, 376 410A		2	23/2	1 3
RLS, DF, 6X4DF, URB, URL, URLS (1939)	0-1/4	1	N14-114	8	410A 425, 510, 525, 603A, 801A, 740, 750	14	2 2	3	
2UTR, 3UTR, 6X2UD (1939)	0-1/4	1	N34-1	8	410A 425, 510, 525, 603A, 801A, 740, 750 1515, 1201, 1203, 1602A, 1603, 2501 243, 311C, 312, 351C, 352 (1935 412B, 412DR, 512B, 512DR (1935) 211A, 220, 227 (1935); 212A, 212B, 221, 228 (1938-37). 244, 313, 320, 353, 360 (1936-37) 412B, 412DR, 512B, 512DR (1936-37).	14	2	414 214 214 114 114 214 314 426	
C20T, C30T, C40D, C4084, C60, C7062, C7084, C70	1,		0 11/		412B, 412DR, 512B, 512DR (1935)	1/8	1	232	
DP, DH, UD (1939); U60, C70D, U7064 (1940-43)	0-14	1	N34-4P	8	244, 313, 320, 353, 360 (1936-37)	1/8	2	134	1 (
8, G (1939); C80D, C90D (1940-43)	0-14	1	N11/6-0	8	412B, 412DR, 512B, 512DR (1936-37)	1/8	1	314	
XZT (1937-36); 6X4TO (1939). XZNF (1937). P (1937). SXNF (1937). XZUNF (1937). XZUNF (1937). XZUNF (1937). XZUNF (1937). XZUNF (1937). INF, UDP, US (1937); C, 6X4TC (1938). INF, UT (1938). JDF, 6X2UN (1937); UDF, US, 6X4TD; 6X4UTO, 6X2UNF, 6X2UNF, 6X2UNF, 6X2UNF, 6X2UNF, 6X4UTO, 6X4UTO (1938). JR, RM, RL, 2TR (1938). JA (1939). JA (1938).	0-14 0-14 0-14 0-14 0-14 0-14	1	0 -11/4 N3/4-3/P N11/4-0 1/9-2 N1-1/4P N1-1/2P	8	80 (1936-37) 80, 301, 304 (1938); 201, 305, 306, 308SC (1939-42) 404SC, 508SC, 612SC, 614SC, 404, 405, 406, 513, 615	1/8	1222222112111	43%	1
X4TD, UDF, UN, UNF, 6X2UN, 6X2UNF (1939);	0.14						1	13/9	1
UT, 4UTR, 5UTR, 6X2UT (1939); U90, U9062 (1940-43)	0-1/4 0-1/4 0-1/4	1	N114-14N N1 -0 N114-14N	8	610, 404C, 509C, 513C, 612C, 614C (1938-42)	3/8	1	134	1
JDP, 5X4UTO (1939); U60D, U8064 (1940-43) JS, 6X4UTD (1939); U70, U80, U80D, U8062. U90D.	0-1/4				509, 611, 612, 613, 614, 513, 401, 402, 507, 607, 609, 508, 610, 4046, 5096, 5136, 6126, 6146 (1938-42) 412DR, 512B, 512DR, 805H, 805W, 805B, 806BW, 805DR, 805DRW, 806H, 806W, 807W, 808W, 900W			1	
0x2HL (1939); C=002 (1940-43) 0x4TC (1939); C=044, C9064, DU100T (1940-43). 0x4TD, UDF, UN, UNF, 6X2UN, 6X2UNF (1939); UBOD, U8062 (1940-43). UT, 4UTR, 5UTR, 6X2UT (1939); U90, U9062 (1940-43). UDF, 6X4UTD (1939); U80D, U8064 (1940-43). US, 6X4UTD (1939); U70, U80, U80D, U8062, U90D, U9064 (1940-43). x4XN, 4X45 (1939)	0-1/4 0-1/8T 0-1/4	1	N11/4-1/4N 5 -7 N1/2-11/2F	8	(1938-40). 802, 803, 804, 803C, 804C, 815C, 803C, 804C (1938-42). 201C, 305C, 306C (1940-42)	1/8	1	23/6 13/6	1
U10, U20 (1940-43)		i	N1/2-11/2F	8	201C, 305C, 306C (1940-42)	1/8	i	i	







ALIGNMENT SPECIFICATIONS

TRUCK MAKES AND MODELS	TOE-IN (In inches unless otherwise shown)	CAMBER (In degrees	CASTER (In degrees)	KING PIN SLANT (In degrees)	TRUCK MAKES AND MODELS	TOE-IN (In inches unless otherwise shown)	CAMBER (In degrees	CASTER (In degrees)	KING PIN SLANT
ODGE KC, KCL (1935) KH31A, KH32A, KH33A, K32A, K33A, K34A (1935). LE-30, LE-31, LE-32, FD3-29, FD3-36, FD3-62, LF-35, LF-36, LF-37, FD4-29, FD4-36, FD4-62, LF-38, LF-39, FDD4-62, FDD4-85 (1936) K45A, K46A, K47A, K48A (1935). LH-45, LH-46, LH-47, LH-48, FD6-36, FD6-51, FD6-12, FD6-60 (1936).	4-4	1 2	2		FWD HS, HA, HR, HG, MJ6, M6, M7, M10, MJ6X6, M6X6, T-26, T-30, T-32, T-80, T-85. CU, CUA, SU, SUA, YU.	14	114	9 .	41/2
LE-30, LE-31, LE-32, FD3-29, FD3-36, FD3-62, LF-35, LF-36, LF-37, FD4-29, FD4-36, FD4-62, LF-38,	33 32		29		CU, CUA, SU, SUA, YU	1/8	11/2	2	0
LF-39, FDD4-62, FDD4-85 (1936). K45A, K46A, K47A, K48A (1935).	43 - 13	2 2	134	7	GENERAL MOTORS T14 (1938-37). TIGH (1998)	* · · · ·	114	13/4	73/4
FD6-60 (1936)	12 A	2 2	18/4 31/2	7 9	T18, T18H, T46, T61, T61H (1936-37)	1	11/2	1% 1% 1% 1% 1% 1% 2%	8
FDB-80 (1938) K52 Special (1935); LM-70, LM-71, LK-80, LK-61, LK-62, LK-63 (1935); LM-70, LM-71, LK-80, LK-61, LK-62, LK-63 (1936); ML. MK (1937) RL, RK (1938); TL, TK, TLD, TKD (1939) VL, VK, VLD, VKD, WL, WK, WLD, WKD (1940-42). LC, FD1-16, MC, FE1-16, PT-50, MD, FE2 (1937); RC, RD (1938); TC, TD-15, TD-20, TD-21 (1939); VC, VD, WC, WD. MF FE3 MF FE4 (1937); RF FF (1938); TF TF	1-1/8	1		8	F16, F16H, T16H, F23, F23H (1937-38) F18, F18H, F33, F33H, F46, F61, F61H (1937)	12-12	1	11/2	8
RL, RK (1938); TL, TK, TLD, TKD (1939)	16-1/8 16-1/8 16-1/8 16-1/8	1	2 2 2 2	8	T14, T145, T15, T155 (1938)	13-14	13/2	23/4	71/2
LC, FD1-16 MC, FE1-16, PT-50, MD, FE2 (1937); RC, RD (1938);	1/8	-		9	T18, T18H (1938)	10-14	1	1	8
ME, FE3, MF, FE4 (1937); RE, RF (1938); TE, TF,	1/8	11/2	134	7	T46, T61, T61H (1938).	10-74	1	12/3	8
ME, FE3, MF, FE4 (1937); RE, RF (1938); TE, TF, TG, TH (1939); VF (1940); WF (1942). MG, MH, FE6 (1937); RG, RH (1938); VM, VG, VH (1940); WFM, WG, WH, WGM, WHM (1942). MO, MP (1937); RO, RP (1939).	16-78	2	2	7	AF-500, AF-650 (1939-42); AF-600, AF-650 (1939-41) AC-700, AC-800, AC-850 (1939-42)	16-14	1	123	8
MO, MP (1937); RO, RP (1939)	16-18	1	21/2	8	GENERAL MOTORS T14 (1936-37). T16 (1936-37); T16H (1936). T18 (1936-37); T16H (1936). T18, T18H, T48, T61, T61H (1936-37). T23, T23H, T33, T33H (1938-37-38). F16, F16H, T16H, F23, F23H (1937-38). F18, F18H, F33, F33H, F46, F61, F61H (1937). T14, T145, T15, T155 (1938). T16, T18H (1938). F18, F18H (1938). F38, F38H (1938); F46, F61H (1938). T46, T61, T61H (1938). AC-500, AC-550, AC-600, AC-650 (1939-42). AF-500, AF-550 (1939-42); AF-600, AF-650 (1939-41). AC-700, AC-800, AC-850 (1939-42). AF-700, AC-800, AC-850 (1939-42). AC-700, AC-800, AC-850 (1939-42). AC-700, AC-800 (1940). AC-350 (1940). AC-350 (1940). AC-350 (1940). AC-350 (1940). AC-350, AF-450 (1940). AC-350, AF-450 (1940). AC-350, AF-450 (1940). AC-350, AF-450 (1940). AC-350, CC-360 (1941-42). CC-150, CC-250 (1941-42). CC-350, CC-300 (1941-42). CC-350, CC-400 (1941-42). CC-350, CF-350, CF-400 (1941-42). CC-350, CF-350, CF-400 (1941-42). AC-720, AC-620, AF-550, AF-770 (1942). AC-720, AC-750, AC-770 (1942). AC-720, AC-750, AC-770 (1942). AC-870, AC-890, AF-720, AF-750 (1942).	10 1/4 04 1/2	11/4	1255 1255 1256 1264 1264 1264 1264 1264 1264	8
EDERAL					AC-300 (1940)	10 /4	11/2	23/4	73 73 73 8
X, X8 (1930-36). (1933).	14	2	31/2	0	AF-300, AF-310, AF-350, AF-400, AC-400 (1940) AC-450, AF-450 (1940)	16-/4	1	1/4	8
A7, A8, 30, 36, 37, 40 (1931-35) 15A, 15B, 15X, 20A, 20B, 20C, 21, 22 (1933-34)	1	1	134	71/6 71/6 71/6	CC-100 (1941-42)	\$ 17 \$ 17	11/6 11/6 11/6 11/6	3 284	73 73 73 73 8 8
A, 88 (1930-56) (1933). A7, A8, 30, 36, 37, 40 (1931-35). 154, 15B, 15X, 20A, 20B, 20C, 21, 22 (1933-34) 25A, 25B (1933-34). C7, C7W, C8, C8W (1934-36). 15D, 18D, 20D, 25D (1935). T10B, T10W (1937).	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	2 2 1 2 1 1	23/4 31/2 3 13/4 13/4 21/4 13/4	8	CC-260, CC-300 (1941-42)	/	13%	3 11/2	73
T10B, T10W (1937) X8, X8R (1937)	**	1	3 234	7½ 9½ 0	CF-300, CF-350, CF-400 (1941-42)	10-14	1	1 3/2	8
10E, 9, 9E, 11, 11E, 15D, 18D, 20D, 25D, 28D, 29D, 40E, 50E, 50H, C7, C8, C7W, C8W (1938-38)	*	1	3	.8	AC-520, AC-620, AF-520, AY-700, AY-800, AY-850 (1942)	14-14	1.	34	8
108, 110W (1937) 10E, 9, 9E, 11, 11E, 15D, 18D, 20D, 25D, 25D, 29D, 40E, 50E, 50H, C7, C8, C7W, C8W (1938-38) 11, 11K, 12, 12K, 14, 14K, 15, 15K, 18, 18K, 20, 20K 25, 25K, 29, 29K, 35, 40F, 45, 50F, 55, 62, 63, 65, 66, 75, 75K, 80, 80K, 85, 85K, 89, 89K, 90, 92, 94				8	AG-720, AG-750, AG-770 (1942) AF-800, AF-620, AF-650 (1942)	10-14	11/4	14	8 8
76, 75K, 89, 80K, 89, 85K, 89, 89K, 90, 92, 94	18	1	31/2	8	GRAMM	16-74		74	
ORD					71, 76, 86, 96, D71, D76, D86, D98 (1940-41) 15, 25, 30, 40, 45 DJX40, 21, 31 (1936-41) 50, 55, 70, 75, 85, DJX55, DJX70, DJX75, DJX85 (1938-39): 56, D56 (1940-41) 11 (1940-41) 41, 46, D46 (1940-41)	1/8	1	2 134 .	8
A Commercial Car (1928-31)	4	2-14	614-316 5 -3	7 7	50, 55, 70, 75, 85, DJX55, DJX70, DJX75, DJX85 (1938-39); 56, D56 (1940-41)	1/6 1/6 1/8	1.		8
B (4 and 8 cyl.) Commercial Car (1932)	*	2-14 2-14 2-14 2-14 2-14	5 -3	7 7	11 (1940-41). 41, 46, D46 (1940-41)	3/8	11/2	2 2 13/4	8
40 commercial (1933-34); 50 Commercial (1935)	\$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$2 \$	4-4	5 -3	81/4 81/4 81/4-8 81/4-8 81/4-8 81/4 8	HIIG		2	1	73
73, 77 Commercial Car (1937)	14	1-1/4	9 -41/2	81/4-8 81/6-8	23, 42, 23W, 42W CB8P. 43, 70, 85W, 87, 87W, 98, 99, 99S, 15W, 19W, 83W 15, 19, CB6P, All wheel drives	10 10	2 2 2	i	0 81
81T, 817T (1938); 91T, 99T, 917T, 997T (1939) Trucks. 81Y, 82Y (1938); 91Y, 92Y (1939) 1-Ton.	1/10	3/4	5 8	81/4	INDIANA				
81C, 82C (1938); 91C, 922C (1939) Commercial 911W, 991W, 91W, 99W, 917W (1939) (C.O.E.)	9,	3/4	1 -31/2	81/4	47DR, 43DR, 19DR, 17DR, 17ADR, 17, 17A 95DR, 95, 95W75, 95SBT151, 14B, 16, 85. 17ASW151, 17SW251, 17SBT251 84, 86, 87	0-1/8 0-1/8 0-1/8 0-1/8	2 1 1 1 136	11/2 11/2 11/2 11/2	8
O18T, O98T, O1T, O9T (1940 Reg.) O1W, O9W, O11W, O91W (1940 C.O.E.)	14	34	1 -31/2	81/4 81/4 81/4 8	84, 86, 87.	0-18	13/2	13/2	7
ORD A Commercial Car (1928-31). AA Truck (1928-31). B (4 and 8 cyl.) Commercial Car (1932). BB (4 and 8 cyl.) Truck (1932-34). BB (4 shot and 8 cyl.) Truck (1932-34). 46 Commercial (1933-34); 50 Commercial (1935). 51 Truck (1935-38). 67 Commercial Car (1938). 73, 77 Commercial Car (1937). 75, 79 Truck (1937). 817, 817 (1938); 917, 997, 9177, 9977 (1939) Trucks. 817, 8177 (1938); 917, 92C (1939) 1-Ton. 810, 82C (1938); 91C, 92CC (1939) Commercial. 911W, 991W, 91W, 99W, 917W (1939) (C.O.E.) O18T, O98T, O1T, O98T (1940 Reg.) O1W, O9W, O11W, O91W (1940 %-and 1-Ton). O22C, O1C (1940 Comm.). 118T, 119T, 11T, 19T (1941 Reg.). 11W, 19W, 111W, 191W (1941-42) (C.O.E.) 110, 11Y, INY (1941-42 %-and 1-Ton). 11C, 1NC (1941-42 Comm.).	****	1 3	5 -3 -4 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3 -3	8 81/4	INTERNATIONAL C1, C5, C15 M2, C10, C20, M3 A1, A2, B2, A4, C50, A5, A6, C55, C80 B3, C30, B4	1/6	2	2	71
11W, 19W, 111W, 191W (1941-42) (C.O.E.)	16	3/4	41/3	81/4 8 8	M2, C10, C20, M3.	14	1 1	2 2 21/2	8



FRONT END ALIGNMENT SPECIFICATIONS

(CONTINUED)

ter tor

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TRUCK MAKES AND MODELS 1941 FLEET OPERATORS' REFERENCE AMNUAL	TOE-IN (in inches unless otherwise shown)	CASTER (In degrees)	(In degroes)	KING PIN SLANT (in degrees)	TRUCK MAKES AND MODELS	TOE-IN (In inches unless otherwise shown)	CAMBER (In degrees)	CASTER (In degrees)	KING PIN SLANT
INTERNATIONAL—Cont. C35, C335, C40	**************************************	1	11/4	8 8 8	STEWART 41H, 46H, 47H (1935-36). 18XS, 48-8, 58X (1935-36). 18XS, 32X, 48-9, 58X (1935-36). 27XS, 31X (1936). 38-8, 33-6 (1935-36). 40H, 60H (1935-36). 46HB, 49HB, 47HB, 49HB (1935-36). 48H, 50H (1935-36). 49H (1935-36). 40HC, 60HC (1937). 61H, 47A, D10A, 47A (1937-38). 45A (1937-38); 45AL (1938). 49A, 50A, 51A, D30A (1937-38). 58A, 59A (1937-38); 35A (1940-42). 47AE, 49AB, 51AB. 49A (1940-42). 58A, 59A (1940-42).	***	1 2 2 1	0 21/6N 11/6N	716 716
W1, W2 A7, A8 D2, D5, D15, D2M D30, D330, D330B, D330B, D15M, D35, D338, D35B, D3535B, D40, D340, D40B, D186T, D5186T, D216T, D3216T, D300, D300 D50, DR50, DS50, D60, DR60, DR70, D246T, DR246T, DS246T, D246F, DR346T, D346F, DR420F, D500, DR500, DS500, DR700	***	2	1-2 1-2 2-3	71/2	29X3, 32X (1935) 38-8, 33-6 (1935-38) 40H, 60H (1935-36) 46HB, 49HB, 47HB, 49HB (1935-36)	***	1 11/2 2 2 2	2½N 1½N 1½N 1½N 1½N 1½ 1½	71/4
D50, DR50, DS50, D60, DR60, DR70, D246T, DR246T, DS246T, D246F, DR346T, D346F, DR426F, D500, DR500, DS500, DR700	A-A	1	14-2	8	48H, 50H (1935-36)	7-14	2 134		774
AR826F K1, K2, K3 (1941-42) K4, K34, K5, K55 (1941-42) K5-COE K55-COE K8, K56, K-6-T, K5-6-T, K-8-F	***	1 2 1	1/2-2 0-1 2-3 2-3	8 71/2 8	61H, 47A, D10A, 47A (1937-38). 45A (1937-38); 45AL (1938). 49A, 50A, 51A, D30A (1937-38). 58A, 59A (1937-33)	0	1 2 2 2	X-12 X-12	834 834 834 834
DR500, DS500, DR700 AR828F K1, K2, K3 (1941-42) K4, K54, K5, K55 (1941-42) K5-COE, K58-COE, K6, K56, K-6-T, K5-6-T, K-6-F, K7-K57 (1941-42) K8, K5-8, K7-COE (1941-42) K8, K5-8, K7-COE (1941-42) K8, K5-8, K7-K7-K7-K7-K7-K7-K7-K7-K7-K7-K7-K7-K7-K	14-1/8	1	2-3 1½-1¾	4	36-6, 31X (1937-39); 38A (1940-42). 47AB, 49AB, 51AB 49A (1940-42). 58A, 59A (1940-42).	0	2 2 1 2 2 2	1 -1% 1%-2 1%-1% 1%-2	8 836
	16-1/8	1	11/4-11/4	4	STUDEBAKER S20, S30 (Before serials 3401715 and 3425745) S40, S50, S80, S41, S81, S81, S120, S130, S140, S150, S8, S8				
(ENWORTH .513, 514, F209 (1938-37) 513, 514 (1938); 539, 540, 541, 542 (1938-42); 552 (1941-42) All others (1936-42)	1/6-3/3	0	5	0	(1931-33)	₩ ₩ ₩	0-1	14-14 14-14	
(1941-42) All others (1936-42)	1/4-1/4	1	1 1 7	8	1T6, 1W7, 1W8, 2W6, 2W7, 2W8 (1935-38)	1	1-14	1 -1%	8
A FRANCE-REPUBLIC All models	1/8-16	1	11/2-2	8	J15, J15M (1937); K10, K15, K15B (1938-40) J20, J25, J30 (1937); K20, K25, K30 (1938-40) J20M, J20MB, J25M, J25MB, J30M (1937)	1-1/	1	14-14 14-14 0 -14-1	8
MARMON-HERRINGTON All Ford 134-ton models (1936-41) All LD models (1936-41) All other models	0-1/s 1-1/s 0-1/s	0 0	11/6 11/6 4	0 81/4 0	\$20, \$30 (After eerials 3401715 and 3425745) \$21, \$31, \$2, \$3 (1931-33). 172, 272 (1935-38) 176, 1W7, 1W8, 2W8, 2W7, 2W8 (1935-38). J5 (1937). J15, J15M (1937); K10, K15, K15B (1938-40). J20M, J20MB, J25M, J25MB, J30M (1937). K5 (1938); L5 (1939). K15M, K20M, K20MB, K25M, K25MB, K30M (1938). Coupe Express (1941-42).	16 /6	1 1	0 -11/2 0 -11/2 11/4	534 8 734 8
OSHKOSH JCB, JD, W-100, W-200 (1940-41) WLX, WLD, B3S, B3D, C3S, C3D, R3S, FC35, FB35,	0-1/8	11/2	1	81/2	WALTER FN, FM, FKM, FCK, FC, FB, FBR, FXB, FXR	N ₁₆	13/6	5	2
WLX, WLD, B3S, B3D, C3S, C3D, R3S, FC35, FB35, FS, FC, FB W-100, W-200 (1942); W-2300, W-300, W-400, W-500, W-600, W-700	0-1/8	134	33/2	0	WHITE 15, 158 160, 161, 162, 60, 60K, 601, 602	2	13%	134 354	834
W-800, W-700 W-900, BG3, GD W-800	0-1/8	1 134 134	11/2	3 6	20, 20A, 20D 210, 211, 212, 611, 612, 612K, 613 40, 40A, 40D, 46, 45A, 45D, 52, 52D, 52T, 55, 50B (Filiate Tyna Ayla)	Whi	136	31/2	834
REO 1AA, 1B4, 1B4R, 1B4Y, 1C4, 1D4, 1D4R, 1D4Y, 1D4M,	1/1/			21/	WHITE 15, 158 160, 161, 162, 60, 60K, 601, 602 20, 20A, 20D 210, 211, 212, 611, 612, 612K, 613, 40, 40A, 40D, 45, 45A, 45D, 52, 52D, 52T, 55, 50B (Elliott Type Axie) 51, 63, 621K, 63, 63D, 64, 640, 60B, 61A (Reverse Elliott Type Axie) 53, 701, 702, 784, 786, 788, 54, 99, 64A, 59A, 691, 712, 713		114	314 284 114 294 114	83
1A4, 1B4, 1B4R, 1B4Y, 1C4, 1D4, 1D4R, 1D4Y, 1D4M, 2B4, 2B4R, 2D4, 2D4R, 2L4, 2L4C, 2LM, 1L5 (1935). 2L4H, 21MH, 2H, 2HR, 2L, 2IR, 2K, 2KR, 3H, 3HR, 3J, 3JR, 3K, 3KR, 3M, 3MR, 3L6, 3L6, 3L6 (1935). 4H, 4WH, 4J, 4WJ, 4K, 4WK, 4M, 4WM (1935)	3/6-3/4 1/6-3/4 1/6-3/4 0-3/6	13/6	11/4	81/2 81/2 81/2	54, 95, 64A, 59A, 691, 712, 713 56, 618, 618K, 620, 621, 630K, 631, 631K, 640K, 641K, 642, 643, 685S.	odela	136		81
ORF (1030)	0 78	134	11/4 11/4 31/4 21/4	8	57		136	31/4 21/4 21/4 11/4	83 0 83
1A4, 1A4H, 1CA, 1C4H, 1B4, 1B4H, 1D4, 1D4H, 2D4, 2B4, 2L64, 2H5, 2L5 (1936). 2D4M, 2DM4H (1936). 3H5, 3J5, 3K5 (1936). 3H5, 3JF8, 3KR5, 4J5, 4K6 (1936). 480, 650 (1937). 475, 675 (1937). 3P7 (1937). 1A4, 1A4H, 1C4, 1C4H, 1B4, 1B4H, 1D4, 1D4H, 2B4, 2D4, 1L5, 2L4, 2L4H (1937-35).	X-X X-X	11/2	11/2	83/5 83/5 83/5	65, 65A 684, 686 730, 731 718, 750, 760T	_	1 1 1 1	234-334	8) 8) 8) 8)
450, 650 (1937). 475, 675 (1937). 3P7 (1937). 184 (1937).	0-1/6 0-1/6 1/6-1/4	136	2 3/2	8 7 83%	844, 808. 730, 731 716, 750, 760T 703, 704, 705, 704K, 706, 708, 709, 710, 720, 722, 804, 805, 809, 810, 784, 785, 788, 789, 720T 706M, 7785, 7788, 812, 818, 850 700, 800, 800M, 802, 804, 1010, 1012		1	334	83 83 8
2D4, 1L5, 2L4, 2L4H (1937-38) 2H5, 2J5 (1937-38) 3H5, 3J5, 3K5, 3HR5, 3JR5, 3KR5 (1937-38) 4H5, 4J5, 4K5, 38H, 2L7M, 2L7MH, 3L6H (1937-38)	16-14 16-14 16-14 16-14 16-14 0-16	13/6	NA NA	81/6 81/6 81/6 81/6	820, 822. White Horse (1940). WA14, WA16, WA18, WA20, WA34. WA22, WA28, WA114, WA118, WA120, WA122.	- (8	1	3 /4 3 /4 3 /4 2 /4	9 8
19, 20, 21, 22, 23 (1940) 19, 20, 21, 22, 23, 4D19, 6D19, D20, OSL-41, NWL-41		36-1	34-1		White Horse (1941)	1	1	23-5	83
(1941-42); 23H, 25, 27 (1942)	0-1/8	1	34-1 134-2	8	WILLYS C101, T101, C113, C131, C157, 77 (1929-37) 37, 38, 48, 440, 441, 440P, 441P, 442, 442P (1937-42)	1/4	2 2	1 -2	73

N—Negative P—Positive T—Toe-out •-- ± 1 degree

TIRE WEAR CHARACTERISTICS DUE TO MISALIGNMENT

INCORRECT TOE-IN

Tire wears from outside to inside of tread leaving feather edge on inside edges of ribs. It is usually more pronounced on the right wheel than on the left.

INCORRECT TOE-OUT

Tire weers from inside of tread to outside, leaving feather edge on outside edges of ribs. Most wear will appear on inside half of tread. It is esually more pronounced on the left wheel than on the right.

INCORRECT CAMBER

Wear on the outside half of tread with excessive camber, wears inside half of tread when camber is not enough. Does not leave a feather edge. This wear takes the form of deep depressions or waves or "heel and toe."

INCORRECT TRACKING

Wear will resemble toe-in or toe-out wear. A feather edge wear similar to toe-in or toe-out, but less pronounced.

UNBALANCED WHEELS

In the case of static unbalance, usually one large spot with one or two small spots on back side. In the case of dynamic unbalance, it is generally spotty wear not limited to one area as in case of static unbalance.

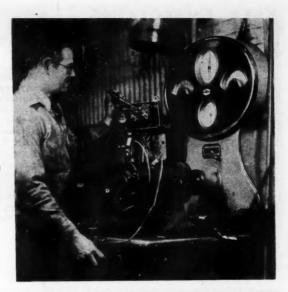
INCORRECT CASTER

Caster in itself does not cause tire wear but may cause an error in comber, toe-in or steering geometry, thus resulting in a wear characteristic of that misalignment.

ELECTRICAL EQUIPMENT TEST SPECIFICATIONS

A truck's electrical system contains a great quantity and variety of vital war materials: copper, rubber, brass, tungsten, etc. Consequently, accurate adjustments of generators, regulators, distributors and starters not only will maintain efficient performance but prolong the life of these parts and thereby aid the national conservation effort. Authoritative, up-to-the-minute data on starter no load and lock tests; distributor contact point openings, breaker arm tensions, centrifugal advances, etc.; voltages and am-

and lock tests; distributor contact point openings, breaker arm tensions, centrifugal advances, etc.; voltages and am-perages of cut-out relays, point openings, current and volt-age settings of current and voltage regulators, and the maximum output of generators, hot and cold, will be found in these columns.



GENERATORS

. CHARGING CONTROLS .

DISTRIBUTORS . . P.118

MAXIMUM OUTPUT

• • • STARTERS • • •

GENERATORS

GENER-

GENERATOR ABBREVIATIONS

- *—Output at given speed—not necessarily maximum output.

 —Field current at 32 volts.

 —Maximum R.P.M. for 8 Amps. at 15.0 volts.

 *—At 13 Volts.

 *—Maximum R.P.M. for 8 Cold test state.

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- -At 13 Votts. -Maximum R.P.M. for 8 amperes at 8 volts. Id test given at 70° F. For each 15° above this, subtract one ampere

 Field current at 12 volts. Fixed third brush unit, 8.0 volts. 	††—Field current at 26 volts. §—Field current at 24 volts.

GENER-	MAXIMUM OUTPUT												
ATOR MAKE AND	Field Amps.		COLD			нот							
MODEL	at 6 Volts	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M.						
AUTO-L	ITE												
DG-4021	2.38-2.63	28.6-30.6	8.0	1600	22.0-24.0	8.0	1850						
DG-4023	2.38-2.63	28.6-30.6	8.0	1600	22.0-24.0	8.0	1850						
DG-4302	2.38-2.63	28.6-39.6	8.0	1600	22.0-24.0	8.0	1850						
DG-4310	2.38-2.63	28.6-30.6	8:0	1600	22.0-24.0	8.0	1850						
DG-4311	2.38-2.63	22.0-24.0	8.0	1650	18.4-20.4	8.0	1800						
DGA-4302	2.56-2.84	29.5-31.5	8.0	2250	23.8-25.8	8.0	2500						
DGA-4801	2.56-2.84	29.5-31.5	8.0	2250	23.8-25.8	8.0	2500						
GAM-4504	3.89-4.31	15.5-17.5	8.0	2050	12.8-14.8	8.0	2050						
GAM-4504B.	3.89-4.31	15.5-17.5	8.0	2050	12.8-14.8	8.0	2050						
GAR-4315	3.51-3.80	15.0-17.0	8.0	2300	13.0-15.0	8.0	2370						
GAR-4515	3.51-3.89	15.0-17.0	8.0	2300	13.0-15.0	8.0	2370						
GAR-4522	3.51-3.89	15.0-17.0	8.0	2300 2300	13.0-15.0	8.0	2370						
GAR-4525 GAR-4543	3.51-3.89	15.0-17.0 15.0-17.0	8.0	2300	13.0-15.0	8.0 8.0	2370 2370						
GAR-4545	3.51-3.89	15.0-17.0	8.0	2300	13.0-15.0	8.0	2370						
UAN-4040	3.91-3.08	13.0-17.0	0.0	2300	13.0-10.0	0.0	2010						
GAR-4607	3.70-4.10	19.0-21.0	8.0	2400	17.0-19.0	8.0	2500						
GAR-4808C	3.51-3.89	20.4-22.4	8.0	2500	16.4-18.4	8.0	2500						
GAR-4608E	3.51-3.89	20.4-22.4	8.0	2500	16.4-18.4	8.0	2500						
GAR-4600B.	3.75-4.15	22.4-24.4	8.0	2450	19.0-22.0	8.0	2700						
GAR-4614-5.	3.51-3.89	20.4-22.4	8.0	2500	16.4-18.4	8.0	2500						
GAR-4622	3.70-4.10	19.0-21.0	8.0	2400	17.0-19.0	8.0	2500						
GAR-4823	3.75-4.15	22.4-24.4	8.0	2450	19.0-22.0	8.0	2700						
GAR-4624	3.51-3.89	20.4-22.4	8.0	2500	16.4-18.4	8.0	2500						
GAR-4631	3.51-3.89	20.4-22.4	8.0	2500	16.4-18.4	8.0	2500						
GAR-4635 GAS-4139A	3.51-3.89	20.4-22.4	8.0	2500 2950	16.4-18.4	8.0	2500 2950						
GBB-4304	3.32-3.68		15.0	1350	13.0-15.0	15.0	1500						
GBD-4002	2.0 -2.2	20.0-22.0	8.0	1900	16.0-18.0	8.0	2050						
GBE-4601	2.75-3.05		15.0	2350	10.0-12.0	15.0	2600						
GBG-4601	1.38-1.52		15.0	1065	40.0	15.0	1120						
GBG-4602	1.38-1.52		15.0	1065	40.0	15.0	1120						

MAKE Field Amps. MODEL at			COLD		нот					
MODEL	6 Volts	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M			
GBG-4803	1.38-1.52°	40.0	15.0	1085	40.0	15.0	1120			
GBG-4804	1.38-1.52°	40.0	15.0	1065	40.0	15.0	1120			
GBG-4606	1.38-1.52°	40.0	15.0	1065	40.0	15.0	1120			
GBG-4608A.	1.38-1.52°	40.0	15.0	1065	40.0	15.0 15.0	1120 1120			
GBG-4811A. GBM-4801	1.38-1.52° 3.80-4.20	19.0-21.0	15.0 8.0	1065 2100	17.0-19.0	8.0	2500			
GBM-4602	3.80-4.20	19.0-21.0	8.0	2100	17.0-19.0	8.0	2500			
GBM-4604A.	3.80-4.20	17.0-19.0	8.0	2250	14.8-16.8	8.0	2550			
GBM-4604B.	3.80-4.20	17.0-19.0	8.0	2250	14.8-16.8	8.0	2550			
GBM-4806	3.80-4.20	17.0-19.0	8.0	2250	14.8-16.8	8.0	2558			
GBM-4606-1	3.89-4.20	17.0-19.0	8.0	2250	14.8-16.8	8.0	2550			
GBM-4006B.		17.0-19.0	8.0	2250	14.8-16.8	8.0	2550			
GBM-4807A.	3.80-4.20	17.0-19.0	8.0	2250 2250	14.8-16.8	8.0	2550 2550			
GBM-4807B. GBM-4808A.	3.80-4.20 3.80-4.20	17.0-19.0 19.0-21.0	8.0	2100	17.0-19.0	8.0	2500			
GBM-4608B.	3.80-4.20	19.0-21.0	8.0	2100	17.0-19.0	8.0	2500			
GBM-4608D		19.0-21.0	8.0	2100	17.0-19.0	8.0	2500			
GBM-4610A	3.80-4.20	14.0-16.0	8.0	2150	11.5-13.5	8.0	2400			
GBM-4612A.	3.80-4.20	19.0-21.0	8.0	2100	17.0-19.0	8.0	2500			
GBR-4605	4.18-4.62	21.0-23.0	8.0	2650	18.5-20.5	8.0	2850			
GBR-4608	4.18-4.62	21.0-23.0	8.0	2650	18.5-20.5	8.0	2850			
GBR-4611	4.18-4.62	21.0-23.0	8.0	2650	18.5-20.5	8.0	2850 2450			
GBW-4602	1.66-1.84	22.0	8.0	1800	22.0	8.0	2450			
GBW-4803D GBW-4804A	1.66-1.84	22.0 22.0	8.0	1800	22.0	8.0	2450			
GBX-4601	2.85-3.15	28.8-30.8	8.0	2050	24.9 28.9	8 0	2050			
GBX-4601A.	2.85-3.15	28.8-30.8	8.0	2050	24.9 26.9	8.0	2050 2050			
GBX-4802	2.85-3.15	28.8-30.8	8.0	2050 1300	24.9-26.9 17.8-19.8	8.0	1350			
GBY-4801	2.66-2.94	20.0-22.0	8.0	1300	17.8-19.8	8.0	1350			
GCB-4601	1.50-1.70	25.0	8.0	1030	25.0	8.0	1170			
GCB-4802	1.50-1.70	25.0	8.0	1030	25.0	8.0	1170			
GCB-4804	1.50-1.70	25.0	8.0	1030	25.0	8.0	1170			
GCB-4808	1.50-1.70	25.0	8.0	1030	25.0	8.0	1170			
GCB-4809A.	1.50-1.70	25.0	8.0	1030	25.0	8.0	1170 1170			
GCB-4810A.	1.50-1.70	25.0	8.0	1030	25.0 25.0	8.0	1170			
GCB-4814A.	1.50-1.70	25.0 25.0	8.0	1030	25.0	8.0	1170			
GCB-4820 GCD-4801	1.50-1.70	20.0	15.0	1110	20.0	15.0	1400			
GCD-4803A	1.37-1.52		15.0	1110	20.0	15.0	1400			
GCE-4806.	1.66-1.84	30.0	8.0	1500	30.0	8.0	1700			
GCE-4807B.	1.66-1.84	30.0	8.0	1500	30.0	8.0	1700			
GCE-4808	. 1.66-1.84	30.0	8.0	1500	30.0	8.0	1700			
GCE-4809	. 1.66-1.84	30.0	8.0	1500	30.0	8.0	1700 1700			
GCE-4810	. 1.66-1.84	30.0	8.0	1500 1500	30.0	8.0	1700			
GCE-4812 GCE-4814A.	1.66-1.84	30.0	8.0	1500	30.0	8.0	1700			
GCE-4815A		30.0	8.0	1500	30.0	8.0	1700			



The data in these pages are compiled for use as a source of reference—helpful, timely answers for fleet mechanics when obstinate problems are encountered.

The information is divided into three major classifications—engines, brakes and tires. Within each classification a number of the most common troubles are listed with their probable causes. Under the heading of Brakes, for example, nine common with their probable causes. Under the needing of Brakes, for example, nine common complaints are listed—low brake pedal, spongy brake pedal, brake noises, erratic brakes, brakes won't hold, brakes drag, wet weather trouble, air brake trouble and vacuum brake trouble. Under the various complaints probable causes are listed. Low brake pedal, for example, shows 13 possible reasons for this trouble and these are divided into three groups—hydraulic, mechanical and all other type brakes—to further assist the maintenance man in locating the cause for the

low brake pedal.

Having this data before him, the mechanic can eliminate those tried and shoot for the remaining causes, one of which certainly should correct the trouble.

TRUCK TROUBLE

ENGINES

This tabulation analyzes all the factors in three main engine troubles knocks, excessive oil consumption, over-heating — and also deals with Hard Starting. No remedies of troubles are offered because in principle the remedy is obvious and in practice it is varied owing to circumstances and conditions.

ENGINE KNOCK -CONNECTING RODS

Al. Loose connecting rod bearings.

A2. Loose piston pins or worn piston pin bushings.

A3. Connecting rods bent or twisted.

B—**PISTONS**

BI. Piston slap, worn pistons or cylinders, tight piston pins.

B2. Rattle when piston rings are broken or loose in grooves.

B3. New piston rings in worn cylinder strik-

84. Loose piston struts.

-CYLINDERS

CI. Carbon knock.

C2. Fuel knock or detonation.

C3. Ignition timed too early or sticking automatic spark advance.

C4. Cylinder not at right angle to crankshaft.

C5. Wrong cylinder head gasket. C6. Loose cylinder block.

-CRANKSHAFT

D1. Loose main bearings. D2. End-play in crankshaft.

D3. Loose flywheel, counterweight, vibra-tion dampener or timing gear. D4. Bent or sprung crankshaft.

CAMSHAFT DRIVE

Et. Improperly adjusted timing chain. E2. Worn timing gears or chain.

E3. Main bearings adjusted so tightly that timing gears engage in too close mesh. E4. Metal chip wedged between teeth of

timing gear. E5. Timing gear loose on shaft.

E6. Off center gears.

F-VALVE ACTION

FI. Too much clearance between valve and

tappet.
F2. Worn valve lifter rollers, pins, or mush-

F3. Worn valve lifter or guide.

F4. Worn valve stem guides.

F5. Worn rocker armshafts or bushings.

F6. Loose rocker armshaft bracket.

F7. Flat spot on rocker arm.

F8. Broken or weak valve springs.

F9. Bent valve.

CAMSHAFT GROUP

G1. Worn camshaft bearings.

G2. End-play in camshaft.

G3. Flat spot on the heel of a cam.

ENGINE GENERAL

HI. Loose engine support bolts.

H2. Engine support brackets loose in frame. H3. Worn bushings on accessory shaft.

H4. Too much pressure or air lock on plunger-type oil pumps.

H5. Loose or worn magneto, pump, or generator couplings. H6. Broken spring in fuel pump.

EXCESSIVE OIL CONSUMPTION

A-OIL PUMPING

Al. Insufficient ring tension.

A2. Insufficient clearance at ring gap.

A3. Rings too loose or too tight in grooves. A4. Uneven ring pressure against cylinder

wall.

A5. Warped or twisted rings.
A6. Too much clearance behind compression ring.

A7. Too little clearance behind oil ring. A8. Out of round and tapered cylinders.
A9. Cylinders not at right angles to the

crankshaft.

A10. Worn pistons and cylinder walls.

All. Misaligned connecting rods.

A12. Loose and elliptical shaped engine bearings.

D

A13. Mismatched bearing halves.

A14. Too much clearance between valve stems and guides.

A15. Excessive oil pressure.

A16. Thin or diluted oil. A17. Defective fuel pump.

-OIL LEAKS

BI. Oil pan.

B2. Rear main bearing.

B3. Front main bearing.

B4. Oil pump.

B5. Rear camshaft bearing.

B6. Timing case cover.

B7. Valve tappet cover.

B8. Rocker arm cover.

B9. Accessory shaft opening in timing case.

OVERHEATING

A-RADIATOR

Al. Insufficient supply of water.

A2. Obstructed air flow.

A3. Radiator core covered with heavy paint.

A4. Fins or air passages stopped up with mud or insects.

A5. Tubes or passages pinched, bent or dented.

A6. Shutter not opening fully.

A7. Anti-freeze not removed

A8. Bent or loose baffle plate.

A9. Leak in overflow pipe.

A10. Pinched overflow pipe.

All. Inside of tubes or passages clagged with sediment, etc.

A12. Thermostat not functioning properly.
A13. Incorrect radiator core.

BI. Slipping fan belt.

B2. Fan pulley worn too smooth or wide in groove

B3. Fan bearings tight, dry, or defective.

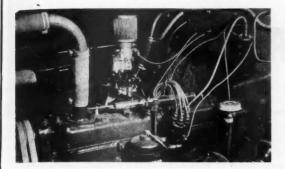
B4. Fan blades too flat.

C-WATER HOSE

CI. Hose old or thin causing collapse from

pump suction.

C2. Rotted internally permitting lining to impede circulation.







SHOOTING GUIDE

D-WATER PUMP

- DI. Loose impeller.
- D2. Excess wear between impeller and hous-
- ing. D3. Worn pump shaft or packing.

E-WATER JACKET

- El. Core not completely removed from casting.
- E2. Circulating holes partially stopped up. E3. Insulated with rust, etc., or stopped up with hose fragments.
- E4. Improper cylinder head gasket.

-ENGINE

- FI. Engine tight, new or overhauled.
- F2. Oil pump not circulating efficiently.
- F3. Oil too thin or diluted, or too heavy.
- F4. Improper valve timing.
- F5. Valves not properly seated.
- F6. Pistons and rings not properly fitted.
- F7. Excessive piston ring wall pressure. F8. Scored cylinder walls.
- F9. Insufficient clearance at ring ends.

G-CARBURETOR AND **MANIFOLDS**

- GI. Mixture too rich or too lean.
- G2. Air leaks in manifold.
- G3. Improper regulation of heat control.

IGNITION

HI. Improperly timed ignition or sticking spark advance.

HARD STARTING

A-IGNITION

- Al. Low battery.
- A2. Improperly spaced or dirty spark plugs.
- A3. Improperly spaced or dirty points. A4. Weak coil.
- A5. Weak condenser.
- A6. Defective starting motor.
- A7. Too heavy oil.
- A8. Poor insulation on high tension wires.

B—FUEL SYSTEM

- BI. Vapor lock.
- B2. Improper carburetor adjustment.
- B3. Improper automatic choke adjustment.
- B4. Defective fuel pump.

BRAKES

LOW BRAKE PEDAL A—HYDRAULIC BRAKES

- A1. Fluid low in master cylinder.
- A2. Air in hydraulic line.
- A3. Too much clearance between pedal push rod and master cylinder piston.
- A4. Master check valve too weak, thereby failing to keep hydraulic preloaded.
- A5. Master cylinder partially or completely closed, restricting the flow of fluid from supply tank to cylinder.
- A6. Weak brake hoses expand.
- A7. Leak in system.

-MECHANICAL BRAKES

- B1. Worn cables and conduits.
- B2. Bent pull rods permit too much play in mechanical linkage.
- B3. Cross shaft improperly adjusted.
- B4. Cam blocks worn.

C-ALL TYPES

- C1. Brake lining worn too thin.
- C2. Too great a clearance between lining and drum.
- C3. Broken spring bolts or loose clips allowing axle to shift on brake application.

SPONGY BRAKE PEDAL A-HYDRAULIC BRAKES

- Al. Inferior grade of fluid which compresses under brake application.

 A2. Air or gas bubbles in line.
- A3. Master cylinder primary cup leaking allowing fluid to by-pass into reserve cylinder.
- A4. Clogged master cylinder port retarding flow of fluid into cylinder.
 A5. Brake hoses weak.

-MECHANICAL BRAKES

- B1. Brake cables stretched or kinked rods straightening under pressure.
- B2. Brake cables or conduits loose in sup-
- B3. Cross shafts incorrectly set.

C-ALL TYPES

- C1. Brake shoes set with too close a clearance at the heel.
- C2. Brake drums too thin resulting in excessive expansion when under pressure or heat.
- C3. Axles shift due to broken spring center bolts or "U" bolts.
- C4. Shoes not centered on drums.

BRAKE NOISES A-HYDRAULIC BRAKES

A1. Insufficient pressure on brake shoes due to sluggish system or sticking wheel cylinders.

B—ALL TYPES

- BI. Brake shoes not centralized within drum either too great a heel or toe contact
- resulting in high pressure or plate squeal. B2. Shoes vibrate due to weak retractor springs or guide springs.
- B3. Lining loose on brake shoes. B4. Loose backing plates.
- B5. Loose wheel bearing.
- B6. Out-of-round drums, or drums loose on hubs.
- B7. Brake shoe vibrates due to too much play in shoe guides. B8. Lining or road dust in assembly.

ERRATIC BRAKES -HYDRAULIC BRAKES

- Al. Air or gas in line.
- A2. Dirty brake fluid.
- A3. Improper operation of master cylinder check valve.

-MECHANICAL BRAKES

- BI. Cable or rod control incorrectly set failing to exert same pressure at all wheels.
- B2. Cam levers set wrong.
- B3. Linkage loose and greasy.

C-ALL TYPES

- C1. Brake shoes not accurately burnished to drum diameter.
- C2. Shoes improperly located within the (TURN TO PAGE 130, PLEASE)

KEEP 'EM ROLLING

1943 FLEET OPERATORS' REFERENCE ANNUAL

VALVE SPRING

Because valve springs are made of high alloy steels so vital for armament manufacture, their conservation not only is wise but necessary. On the other hand, the re-use of a valve spring that does not comes up to factory specifications may result in burned or sticky valves, poor power, wasted fuel, etc. After every valve job the springs should

MANUFACTURERS' RECOMMENDATIONS

ABBREVIATIONS: I.—Inner O.—Outer

Int.-Intake

al

			VALVE S	PRINGS					VALVE S	PRINGS	
		Valve	Open	Valve C	Closed			Valve	Open	Valve 0	Closed
TRUCKS	Year	Pressure (Ave.) Pounds	Length Inches	Pressure (Ave.) Pounds	Length Inches		Year	Pressure (Ave.) Pounds	Length Inches	Pressure (Ave.) Pounds	Length
AUTOCAR All models having the 315, 331, 358, 377, 404, 408, 447, 453 and 501 cu. in. engine. C-10, C-20, U-10, U-20 DC-10, DC-20.		110 58 55	2½ 1.594	76 43 31	2½ 1.920	FORD 60 85, 95, 30	1939-1940 1939-1942	48-52 76-80	1.788 1.827	28-30 37-40	2.05 2.13
C-9044		37 84 45	1.406 1.281 35/4 214	19 47 27	1.781 1.656 3-7 3-7	F. W. D. HS, T26, HA, T30 HG, HR, HM, HH6, CUA, CU, T32 SUA, SU, YU, MJ5, MJ6, T40, MJ	*******	101-119 93-109	13/4	56-66 59-69	21/8 21/1
DC-100-T, DC-100-D, DC-10044, DC-10062, DC-10064	*******	136	216	87	211	6X6 M7, T45, T60, T65, M6, M6X6 M10		89-99 105-115 85 47	274 314 3.4 214	54-64 65-75 43-52 24-31	241 341 35% 35%
ROCKWAY 78, 83, 88, 92, 94 112, 128, 146, 147 152, 153, 154, 162, 156, 166 0, 1 170, 195, 175, 220, 240, 260 0, 130, 125X, 145, 150X4, 150X5, 0, 160X, 165X	1939-1942 1940-1942 1940-1942 1939-1942 1939-1942	98-104 105-111 111-118 111-118 102-110 28-32 105-115 47-53 90-98 31-35	1% 141 1.521 1.521 1.521 1.521 141 174 144 144	42.5-47.5 43.6-47.8 53-59 53-59 45-51 11.3-14.3 54.7-56.7 20.4-24.4 43.5-49.5 16.6-19.6	144 214 11/4 11/4 11/4 11/4 21/4 21/4 21	GENERAL MOTORS TRUCK AC & CC-100, 180, 250, 300, 350, 400, 450; ACS, CCS & CF-300, 350, 400 & 450; ACT, CCT, ACW, CCW, AFT, CFT, AFW & CFW-350 & 400; AF-310, 380, 410 & 480;	1939-1942	130	1.495	55.5	1.82
HEVROLET All models All models	1939-1940 1941-1942	127 128	11/4	52 55	1+1 1+1 1+1	ACR, 5CR, ACRW & GCRW-SOU ACV & CCV-100: AF & AFF-240 AC, ACR, AF & AFR-520; AC & AF-500, 550. 600 & 650: ACT & AFT-500 & 600: ACW & AFW-600 AC, ACR, AF & AFR-620: AC, AF & AY-700, 800 & 850: ACT, ACW, AFT & AFW-700: AC, ACR, AF & AFF-720 & 750: ACX-670 & 890:	1939-1942	100	181	54	182
ORBITT 13B, F-12, 18SB2, 18SB4, 1st 18SB6. 2nd	1939-1940 1940-1942	105-111 111-118	137 1.521	43.6-47.6 53-59	2 A 11/6	AC-770	1939-1942	108	1#	54	182
17B, 14BT, 17BT, F-14, F-19, 25SB4, 25SB2, 25SB8, 21B, 26D, 18BT, F-18, 35SB4, O. 35SB2, I. 22BT, 27BT, F-23, F-27, F-35, O. 40SB2, 40SB4, 40SD6 I. 50SD6, 54SD6 O. D18BT I. D27BST	1940-1942 1939-1942 1939-1942	90-98 31-35 105-115	1.521 134 134 174 134 356 218 2	53-59 43.5-49.5 16.6-19.6 54.7-58.7 20.4-24.4 47 27 69 87	11/4 21/4 21/4 21/4 21/4 21/4 31/4 21/4 21/4	GHAMM 11A, 21A, 31A, 41A 0. 46A, 56A, 71A, 76A, 86A 046A, D56A, D71A 0. GF 0.		41 37 58 102 55 37 84 45	1 \$\frac{2}{3}\$ 1.281 1.594 2 \$\frac{5}{3}\$ 1.406 1.281 36% 21\$	17 19 43 50 31 19 47 27	1 4 1 . 6 1 . 9 2 4 4 1 . 7 1 . 6 3 1 3 1 4
DIAMOND T 404, 404SC, 404C, 406, 509, 509SC, 509C, 612, 612SC, 612C, 614, 614SC, 614C 702, 702C, 805, 805C, 806, 806C, 900	********	58	1.594 257	43 50	1.920	HUG 19W, 23W, 85W, 83W 87W, 42W, 87W6 92U, 43W, 44-4, 45-4 98, 99, 99S 51-6. 1,	1939-1942 1939-1942 1939-1942 1939-1942 1942	101-109 94-99	13/4 131/2 22/4 31/7 21/4 3 /7	61-66 64-69 59-64 70-75 24-31 ¹ / ₂ 43-52	21/3 21/3 21/3 31/4 35/8
DODGE TC, TD, VC, VD. TE, TF, TG, TH. TL, TK, RO, RP, VL, VK, WL, WK VF, VM, VG, VH, VR, VS, WC, WD, WF, WFM, WG, WH, WGM, WHM	1939-1940 1939 1939-1942 1940-1942	105 94	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	36 423/2 577/2 423/2	13/4 13/4 3-14 13/4	INTERNATIONAL HARVESTER D2, D18, D30, D300, K1, K2, K3, K4, K5 D38, D40, D400, K6, K7 D50, D500, D60, D70, D700, K8, O, K10, K11, K11, K11, K11, K11, K11, K11,	1937-1942 1937-1942 1937-1942 1937-1942	80 90 45 140	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	47 55 40 20 61 36	21/4 2 2 11/4 21/4 21/4
FEDERAL 8. 15, 18, 20, 25, 29 40, 50, 35, 45, 55. C7, C8, 63. 62. 0.	1940-1942 1939-1942 1939-1942 1939-1942 1939-1942 1939-1942	37 52 60½ 94 50	1 27 1 18 2 16 2 14 1 12 1 17 1 17 1 17 1 17	19 31 47 59 2214 5634	1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	KENWORTH 505, 506, 507, 508, 509, 514, 515, 516, 510, 511, 512, 519, 520, 521, 522, 523, 524, 548, 549, 550, 552. 543, 544, 545, 546. 513, 536, 537, 538, 551		136 113 58 64	2 1.594 2 1.594	87 89 43 50	2H 2H 1.9

PRESSURES

be gaged for resiliency and measured for length to determine their suitability for re-use.

The accompanying table supplies all the necessary check data both in the open and closed positions according to the original engineered standards of efficiency and performance.



BY TRUCK AND ENGINE MAKES

Exhaust *-Up to engine No. 1600 **-After engine No. 1600

			VALVE S	PRINGS			-		VALVE S	SPRINGS	
		Valve	Open	Valve (Closed			Valve	Open	Valve (Closed
-	Year	Pressure (Ave.) Pounds	Length Inches	Pressure (Ave.) Pounds	Length Inches		Year	Pressure (Ave.) Pounds	Length Inches	Pressure (Ave.) Pounds	Lengt
MARMON-HERRINGTON J-5, J-6, JJ-5, JJ-6, LD-5, ULD-5, OT-4, OOT-4 DSD-100, DSD-200, DSD-300. DSD-400, DSD-500, DSD-550, LSD-550R, DSD-600, DSD-700, DSD-800, DSD-800, DSD-900,	1941-1942 1941-1942 1941-1942	76-80 58	1.827 1.594	37-40 43	2.13 1.920	CONTINENTAL—Cont. E600, E601, E602, E603 O., F4124. F4140. F4162 F6170. F6199. F6209. F6218 M6271. M6290, M6330 20R, 21R, 22R O.,	1939-1942	90-98 31-35 78-86 98-104 111-118 106-115 47-53	13½ 13¼ 13¼ 13% 1.521	43.5-49.5 16.6-19.6 31-37 42.5-47.5 53-59 54.7-58.7 20.4-24.4	21/4 25/32/18/4 18/4 17/8 21/4 25/4 25/4
DSHKOSH	1941-1942 1941-1942	84 45	2 1 3 5 5 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	47 27	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	CUMMINS	1939-1942	113	2	69	
JCB, JDS, W-100, W-200	1939-1942	58.7	1.594	43	1.920	H. K, KO, L, VL		136 238	276	87 110	211 211 316
JCB, JDS, W-100, W-200 W-300, W-400, W-500, W-800, W-700, W-800 BG3, GD	1939-1942	102 84 45	2 1 2 3 5 8 2 1 4	50 47 27	211 312 314			200	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22 21	1½ 1½ 1½ 1.92
REO 184H, 1D4, 1D4H, 1BM7, 284, 2D4, 2L4, 2H, 2J, 2K, 2L, 2B, 2D, 2D4M, 2D4MH, 2BM7, 2L7M, 2L4H, 2L7MH, 2H5, 3J5, 3K5, 3H5, 3JR5, 3J	1936-1938 1940-1941	135–145 135–145	2 1 6 2 1 6 2 1 6	50-54 50-54	23/8 23/8	HERCULES (Series) BX. ZX. NX. IX-3, IX-5. OO. JX. K. L., G, E. TX. QX. OX, WX, WXL. YX, RX, RXL. HX. DIX, DOO, DXJ DRX. DHX, DFX. L.	**********	42 58 73 100 41 37 102 84 45 55 37 48 30 94	316 316 128 1.281 2.52 356 218 1.406 1.281 1.449 1.355	17 19 50 47 27 31 19 27	3 % 3 % 1 % 1 . 65 2 % 1 . 78 1 . 65 1 . 84 1 . 78
J5-K5, J10-K10, J15-K15, M16 J20-K20, J25-K25. J30-K30. M5-M15.	1937-1942 1937-1940 1937-1940 1941-1942	75-80 80-85	13/4 11/9 23/3 1/16	57 41-45 45-50 37-41	237 147 284 134	WAUKESHA = ICK. FCS, FC. XAH. Let		57	215 221 231 156	55 32 16 36	315 35 35 116 123
WALTER				50	28/6	XAH. Exh.	*********	68	15/8	56 56	17/8
FM, FKM, FCK, FC Exh.	********	64 87	216	52	233	XBKHExh. O. Exh. I.		95	133	43	23 176
ADK O.	**********	45	216 217 218 314 358 218 1.449	52 100 47 27 27 17	238 238 238 238 238 358 358 357 314 1.844	Exn. 1. Int. 0. Int. 1. 130HS, 130HL, Exh. 0. 130GS, 130GL Exh. 1.		89 48 55 100	15/8 15/8 1-1-1-2 1-1-3-3-4 1-1-6 1-1-6 1-1-6	28 35 24 26 39	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
ADB, ADV.		30 136	1.355	17 87	1.750 211	Int. O.			116	26 39	21/2
WHITE 700 710 710 750 010 010			2		33	VIM, VIK, VIS, VIL Exh. O. Exh. I. int. O. Int. I.	*******	55 51		38 32 28 25 22 36	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
822, 850. 904, WA-14, WA-16, WA-20, WA-22, WA-28, WA-34, WA-114, WA-114, WA-120, WA-122, WA-134, 782.	1939-1942	99-107	21/32		3 1 2	Int. O. Int. O. Int. I. O. Int. I. O. Int. I. O. Int. I. O.	*********	72 33 78 82	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22 54 48	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
WILLYS 38, 48, 440 441, 441P, 442, 442P	1938-1940 1941-1942		115 134	46 50	2½ 2½ 2½	Int. O.	******	96 53	216 13/4 13/4 13/4 13/2 13/2 11/2	39 26 35 24	2½ 1¾ 2¾ 1¾
ENGINES						6MK, 6MZ, 6MKR, 6MZR 140GS, 140GK, 140HS, 140HKO.		64 75 55	216 184	50 20 26 52	28 21 12 13 22
						Int.		. 84	1 1 1 2 1 7 2 1 7 2 1 7 1 6 2 8 8 2 8 8	52	23
CONTINENTAL A6244. 1st A6244. 2nd B6371, B6405. O.	1939-1940 1940-1942 1940-1942	111-118	131 1.521 1.521	43.6-47.6 53-59 45-51	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	145GS, 145GK, 145HS, 145HK. O. 6GAK, 6GAL		100	23/8 21/6 21/6 133/2 31/4	67 42 61 36	22 21 21 23
I.	1940-1942	28-32	111	11.3-14.3	111	6RBR		140	31/4	100	35



TENSION SPECIFICATIONS

FOR USE WITH TENSION WRENCHES

Snapped studs and stripped threads should be a thing of the past in the progressive fleet shop—even where unskilled labor replace veterans. Tension wrenches can eliminate those troubles and contribute to material conservation by preventing cracked housings, cylinder heads, etc., due to uneven tightening with ordinary wrenches.

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The tension wrench makes nut and stud tightening a precision job. The mechanic merely consults the tables below for the proper tension reading, tightens until the pointer on the wrench scale indicates the limit has been reached.

ABBREVIATIONS:

° Center and Rear. °° Front and Intermediate. °°° Connecting Rod 1 in. † Babbitt. Nets 1—Rocker Arm Support 29 (1938), 2734 (1938). 74-18, cast iron head—34-38 18mm, cast iron head—28-32 18mm, aluminum head—24-28 14mm, cast iron head—24-28 14mm, aluminum head—20–24 Note 3—Injecter crab nut 11. Note 4—Ali 18 mm. pluga 33–42 Note 5—Manifold 100–110. Nete 6-Manifold 70-78. Note 7-Sparkplug. Iron head-28-30. Aluminum head-28-28.

All Others BUDA All Models 71 72 73 74 75 76 76 77 77 77 77 77 77 77 77 77 77 77	50- 55 10- 85 10- 85 1"- 60- 7 1"- 75- 8 1"- 95-10 1"-125-13 1"-150-16	60- 70 130-140	55- 60 65- 90
All Models CHEVROLET (1938) (Note 1) (1939) (Note 1) (1940-41-42) CONTINENTAL A8244 (Note 4) B6371, B6405 (Note 6) E800, E601, E602, E603, (Note 5) F4124, F4140, F4162 (Note 4) F8170, F6199, F6209, F6218.	"- 60- 7 "- 75- 8 "- 95-10	0 11"-11	
(1939) (Note 1) (1939) (1940-41-42) CONTINENTAL A8244 (Note 4) B8371, B6405 (Note 6) E800, E601, E502, E803, (Note 5) F4124, F4140, F4152 (Note 4) F8170, F6199, F6209, F6218.	″-150-16		30-250 45-275 85-315
(1839) (1840-41-42) CONTINENTAL A8244 (Note 4) B6371, B6405 (Note 6) E800, E601, E602, E603, (Note 5) F4124, F4140, F4162 (Note 4) F8170, F6199, F6209, F6218,	87	106	
A8244 (Note 4) B6371, B6406 (Note 6) E800, E601, E602, E603, (Note 5) F4124, F4140, F4192 (Note 4) F8770, F6199, F6209, F6218.	78 75- 80	100-110	40- 45
A8244 (Note 4) B6371, B6405 (Note 6) E800, E601, E602, E603, (Note 5) F4124, F4140, F4162 (Note 4) F8170, F6199, F6209, F6218.	. 9		
(Note 6) E800, E601, E802, E803, (Note 5) F4124, F4140, F4162 (Note 4) F6170, F6199, F8209, F6218.	70- 75	100-110	35- 40
(Note 5) F4124, F4140, F4162 (Note 4) F8170, F6199, F8209, F8218.	70- 75	100-110	100-110
F4162 (Note 4) F8170, F6199, F6209, F6218.	00-110	100-110	100-110
F6209, F6218,	70- 75	100-110	35- 40
134	-35-40 -70-75	100-110	35- 40
M6271, M6290, M6330, M6253 (Note 6)		1/2"-100-110 1%"-130-140	70- 75
20R, 21R, 22R (Note 5)	00-110	100-110	100-110
CUMMINS	35-250	150-170	40-45
Ĥ-HS 4	25-450	310-330	105-115
Piai	8 53-571/2 in head screws 85-70	75- 80	60- 65
Cup cap 67	ped head screws 71/2-721/2 10- 85	75- 80	60- 65

Engine Make	Cylinder Head	Main Bearings	Connect- ing Rod Bearings
FORD (1938-42)	85 h.p. alumi- num—40 60 h.p. alumi- num—30 All iren—50		
(14010 2)	All trott Go		-
GEN. MOTORS 216, 223, 230 239, 257, 286 331, 400, 450	60- 70 60- 70 65- 75	75- 85 90-100 90-100	40- 50 65- 78 90-100
479, 529, 707 228, 236, 248,	100-120	100-120	100-120
256, 270 278, 308 361, 426, 451, 477 Diesel:	60- 70 65- 75 65- 75	70- 80 75- 85 90-100	40- 50 65- 75 90-100
3-71, 4-71, 6-71 (Note 3)	1670-170 Cold (180)	175-180	65- 70
479, 529, 707	Hot 110-120	90-100	90-100
HERCULES			
ZX Series	35 35	77	25 42
IX Series OO Series	80	77 105	53
QX Series	60	*60 **70	39
JX Series	80	*80	56
WX Series	60	*70 **105	105
YX, RX Series	80	*105 **123	105
RXL Series	74	175	158
HX Series	105	*193	263
DOO Series	158	*77	140
DJX Series	158	*77 **95	140
DWX Series DRX Series	158 54"-175	175 175	158 168
DHX Series	%7-175 17-280 14-175 114-350 210	*193 **210	263
DFX Series	210	260	263
INTERN'L HARVESTER All Models	#*~ 60 #4*~ 67 \$4*~ 93	14" - 75 14" - 75 14" - 93	-\$€°-56-70

Engine Make	Cylinder Head	Main Bearings	Connect- ing Rod Bearings
LYCOMING AFE, AEF ASE, BF	5214- 58 49- 5214		
REO \$140, \$209 \$228, \$3-268, \$3L268,\$5-309,	60- 61	87- 98	49-8234
GC228, GC245, GC288, GC310	83-100	67-75	70-78
STUDEBAKER J5, J10, J15, J15M, J15B, K5, K10, K15, K15M, K15B, L5 (Note 7)	83	82	84
Coupe Express, Standard (1941)	50	92	54
Heavy Duty (1941)	83	92	54
WAUKESHA 6BL, 6BM, 6BK, 6BKH 6ML, 6MK,	73-75	88-92	67-00
6MKR, 6MZ, 6MZR	73-75	98-100 160-164	67-89 121-125
6SRLR, 6SRKR 130HS, 130HL, 130GS, 130GL 140HS, 140HK,	73-75 96-100	109-113	67-89
140GS, 140GK CHK, HL WK, WOK FEB 6GAK, 6GAL 6RBR HBKH	130-134 130-134 130-134 130-134 130-134 117-121 130-134	130-134 130-134 130-134 125-130 125-130 130-134 130-134	121-12 67-69 88-88 67-89 73-75 73-75 73-75
145HS, 145HK, 145GS, 145GK 6WAK, 6WAKH 6EK, 6EKH,	130-134 146-150	242-250 242-250	73-75 88-88
6EK, 6EKH, 6LK, 6LRD, 6LRH	292-300	242-250	185-174
WHITE All Models	%"- 28- 32 12"- 48- 52 12"- 70- 75 12"-105-115 12"-140-150 12"-175-185		
WILLYS 48, 440, 441, 442 (Note 7)	Screws 65-75 Nuts 60-65	65-70	50-55

POLISHING SHELL TYPE REFLECTORS

Polishing reflectors does not consist of carelessly wiping with any old rag. A seemingly bright polish may be obtained in this manner, but very shortly thereafter an uncleanable discoloration will set in and the reflector is

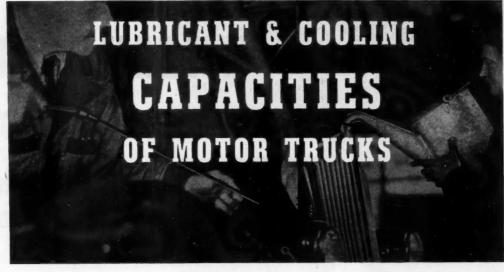
The reflector should first be washed with warm scapy water to remove the loose dirt and lighter road film, then thoroughly rinsed with plain water. Polish should then be applied with a soft rag, preferably flannel. In polishing, an in-and-out movement from the

center of the reflector to the outside edge should be used. After allowing the polish to dry, the reflector should be wiped with a piece of dry flannel. There are available many manufactured polishes which do a satisfactory job.

In the interest of oil conservation, lubricants should be added and changed according to the capacities specified by the truck manufacturers rather than poured in until they overflow through the level hole. Wartime shortages also make it necessary to measure anti-freeze carefully to prevent serious damage to the cooling system.

These tables will be very helpful to the employees entrusted with the important job of safeguarding the cooling system and preventing wear by lubrication, especially with labor changes occurring constantly.

a—2-speed rear, 8 qt. b—Double reduction rear, 6½ qt. c—Double reduction rear, 9 qt. d—Front axles same as rear. s—10 summer, 14 winter.



g—2-speed rear, 18.
 h—Auxiliary transmission and power divider require 8½ qt. additional.
 l—Each axle.
 l—10 summer, 15 winter.

m—8 pt. summer, 12 pt. winter.
n—Capacity of jackshaft unit.
p—Auxiliary transmission requires 6 pt.
additional.
q—Auxiliary transmission requires 10 pt.
y—Auxiliary transmission requires 12 pt.

Trocar	TRUCK MAKE	LI	JBRIC/	ANT	Quarts	TRUCK MAKE		JBRICA SAPACI		System y, Quarts	TRUCK MAKE	1	UBRIC	ITY	System
TOCAR A LIA S B B 2 BROCKWAY S S S S S S S S S	AND MODEL	Engine	Trans- mission Pints	Rear Axle Pints	Cooling S Capacity,		Engine	Trans- mission Pints	Rear Axie Pints	Capacity,	AND MODEL	Engine	Trans- mission Pints	Axie Pinte	Cooling
120, 120, 120, 120, 120, 130, 130, 130, 130, 130, 130, 130, 13	TOCAR			8		BROCKWAY 78 (1936-42)	5	6	6		DIAMOND T Cost			15	22
220, C20T, U20, U20T	, RLD, RM, RMT, 1TR,	10	14			88 (1936-42)	5	6	8	191/2	221 (1936-37)	6	41/2	6	2
20, C20T, U20, U20T	DP	10	14	12	39	94 (1936-42)	5	51/2	12	191/2	244, 313 (1936-37)	6	41/2	8	1
10	P 6X2IID	10	14	12	37	96, 110, 125X (1936-40)	8	51/2	8	28	320 (1935-37)	6	10	8	1
0. C20T, U20T, U20T		12	30	18	39	128 (1938-42)	7	51/2	12	22	80 (1936-37)	6	2	0	
10	DH, 3TR	12	14	18	39	130, 145 (1936-40)	8	5½ 814	12	28	80, 301, 304 (1938)	6	4	6	1
10	, 2TR, 6X2DF	12	14	12	39	150X5 (1936-40)	8	16	12	28	402COE (1938)	6	4	8	
0. C20T, U20T, U20T	NF, 5TR, 6X2T, UNF,					160X, 160XSBT, 165X (1938-40)	8	16	12	30	404, 405 (1938)	6	4	6	
0. C20T, U20T, U20T	X2UT	12	18	18	41	170X (1936-40)	10	24	11	29	507 (1939)	. 6	6	8	1
0. C2DT, U2O, U2OTT	I, 2UTR, 3UTR, 6X2UN, US. IF	12	14	18	41	180XSBT Spec. (1936)	10	24	13	30	607COE (1939)	6	6	8	
0. C2DT, U2O, U2OTT		12	30	18	41	220X (1936-42)	10	24	17	29	609COE (1939)	6	10	8	ı
0. C2DT, U2O, U2OTT	4DF, 4X4N	12	23		39	240X (1936-42) 260X (1936-42)	10	24	17	31	612 (1939)	6	10	8	
0. C2DT, U2O, U2OTT	48	12	23		41	146 (1941-42)	7	12	12	22	613, 614 (1939)	. 6	10	12	
0. C2DT, U20, U2DT	TO, 6X4UTO, 6X4UTD	12	18		39	147 (1941-42) 152, 153 (1941-42)	8	16	16	28	512B (1939)	. 8	18	10	
0. C2DT, U2O, U2OTT	4TD	12	30		41	154 (1941-42)	8	16	16	28	201, 305, 306 (1939)	. 6	4	4	
0. C2DT, U2O, U2OTT	URB	10	12	12	23	156 (1941-42)	8	16	18	29	306C (1939)	6	4	6	
10. C201, U201	0, C10T, U10, U10T	6	8	8	22	166 (1941-42)	8	16	12	291/2	404, 406 (1939)	. 6	41/2	6	
10, 140	0, C20T, U20, U20T	10	12	12	22	CHEVROLET					509C, 612C(1939)	. 6	41/2	8	
10	0, U40	10	14	12	23	½ Ton (1934-35)	5	21/2	41/2		612 (1939)	. 6	12	8	
004 10 1 4 12 1 23 14, 70n (1936) 5 6 14, 7 15 803C (1939) 8 20 10 10 10 10 10 10 10 10 10 10 10 10 10	U40D, U4082	10	14	14	23	1/2 Ton (1934-35)	5	21/2	41/2	15	614C (1939)	. 6	12	8	
100	064	10	14	121	23	11/2 Ton (1936)	5	81/2	7	15	803C (1939)	. 8	20	12	
10	0D	10	16	20	23	1½ Ton (1937-38)	5			1 14	201 (1940)	. 6	31/2		
10	80	12	14	14	39	1/2, 3/4 Ton (1939-42)	5	11/2	41/2	14	201C (1940)	6	41/2	8	
12	OT, C70, C70T, C70D, C706	2 12	14	20	39	1½ Ton (1940-42)	5	51/2	11	14	306SC (1940)	. 6	41/2	8	
10	80 T, U70T, U80, U80T, U80 D 118062	12	14	18	A1	C.O.E. (1939)	5	51/2	11	161/2	404 (1940)	. 6	41/2	8	
170, U7062	30D	12	14	18	37	0.0.2.(10-10-12)		1 -6 4	1		404SC (1940)	. 6	41/2	8	
12	70, U7062	12			41	12R (1937)	8	-8	12	26	509C, 612C (1940)	. 6	41/	9	
7094 12 14 18 39 18BT (1937) 8 8 8 20 14 30 803C (1940) 8 20 12 12 14 18 39 18BT (1937) 8 24 14 30 803C (1940) 8 20 18 18 18 1937 10 30 15 38 804C (1940) 8 20 18 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	7064	. 12	14	121	39	22B (1937)	. 8	24	14	30	612 (1940)	. 6	12	9	
80D	7064 80, C80T, C8062	12	14	121	39	14BT (1937)	8	24	14	30	803C (1940)	. 8	20	40	
3064, U8064 12 14 161 41 128 (1938-41) 5 8 12 26 805B, 805BW (1940) 8 20 12 14 18 41 13B (1938-41) 5 8 8 27 805DRW (1940) 8 20 12 14 18 41 13B (1938-41) 7 12 14 28 900W (1940) 8 20 12 14 14 18 17 17BT (1938-41) 7 12 14 28 900W (1940) 13 24 14 18 12 18 (1938-41) 8 16 15 30 201 (1941-42) 6 31/2 14 18 18 18 18 18 18 18 18 18 18 18 18 18	30D	. 12	14y	18	39	22BT (1937)	. 10	30	15	38	804C (1940)	8	20	16	
10 10 10 10 10 10 10 10	3064, U8064	12	14 x	161	41	12B (1938-41)	5	8	12	26	805B, 805BW (1940)	8	20	12	
90D 12 24 41 175, 1761 (1936-41) 8 16 15 30 201 (1941-42) 6 31/4 19062, 19062 12 14 y 18 41 14BT (1938-41) 7 12 8 29 306 (1941-42) 6 41/2 19062 12 14 y 18 41 14BT (1938-41) 8 16 16 30 201C, 308C (1941-42) 6 41/2 19064 12 14 y 18 41 14BT (1938-41) 7 12 8 29 306 (1941-42) 6 41/2 19064 12 14 y 18 41 14BT (1938-41) 10 24 15 38 404, 404C (1941-42) 6 41/2 19064 12 14 y 18 46 270T, F27, 27BT (1938-42) 10 24 16 38 404SC (1941-42) 6 5 6 5 6 6 7 14 1938-42 10 10 10 10 10 10 10 10 10 10 10 10 10	90, C90T, U90, U90T	. 12	14	1 18	41	13B (1938-41)	. 5	8	8	27	805DR, 805DRW (1940)	12	20	14	
9044.	90D	12	24			21B (1938-41)	. 8	16	15	30	201 (1941-42)		31/	6 6	
10064	9044	. 20	24 x	1 10	. 48	26D (1938-41)	. 8	16	16	30	201C, 306C (1941-42)		41	2 1 0	
9064.	9064	12	14 3		. 41	18BT (1936-41)	. 8	16	14	31	306SC (1941-42)	!	41	6 8	
C100D 16 26 y 46 770 172 28 (1535-22) 5 8 12 27 406, 509, 612SC (1941-42) 6 5 5 (10044 16 24 x 46 F12 (1938-42) 7 8 8 28 406SC, 69SC (1941-42) 6 5 5 (10064 16 24 x 46 F18 (1938-42) 8 8 9 30 509C, 612C (1941-42) 6 5 5 (10064 16 24 46 F19 (1938-42) 7 12 9 28 612 (1941-42) 6 5 5 (10064 16 24 46 F19 (1938-42) 10 16 11 38 614 (1941-42) 6 12 (1941-42) 6 1	9064	. 12	14		. 41	22BT (1938-41)	. 10	24	15	38	404, 404C (1941-42)		5 5	8	
C10044	C100D	16	26	18	46	F12 (1938-42)	. 8	8	12	27	406, 509, 612SC (1941-42)		6 5	9	
C10064 16 24 46 F19 (1938-42) 7 12 9 28 612 (1941-42) 6 5 U1007, DU10062 20 26 18 41 F23 (1938-42) 10 16 11 38 614 (1941-42) 6 12 U10064 20 26 41 F35 (1938-42) 10 24 17 38 612 (1941-42) 6 12 G128C (1941-42) 6 5	C10044	. 16	24 2		46	F14 (1938-42)	. 7	8	8	30	509C, 612C (1941-42)		8 5	9	
DU10064. 20 26 18 41 F23 (1938-42). 10 16 11 38 614 (1941-42). 6 12 DU10064. 17 38 614 (1941-42). 6 12 CU10064. 17 38 614C (1941-42). 6 12 CU10064. 17 38 612 CU10064. 17 38 612 CU10064. 17 38 612 CU10064. 17 38 612 CU10064. 18 41 F35 (1938-42). 10 24 17 38 612 CU10064. 18 41 F35 (1938-42). 10 24 17 38 612 CU10064.	C10064	16	24		46	F19 (1938-42)		12	9	28	612 (1941-42)	**	6 5	9	
612SC (1941-42)	U100T, DU10062	. 20	26	18	41	F23 (1938-42)	10	16	11	38	614C (1941-42)		6 12	9	
		2	20		41	F30 (1030-42)		-	1.	00	612SC (1941-42)		6 5	9	
NTAM DIAMOND T B 10 12 24½ 805C (1941-42). B 20 1 15 3 2½ 2½ 5½ 512B (1935-37). B 10 B 24½ 805C (1941-42). B 20 1 15 15 15 15 15 15 15	NTAM		91	6 21	6 4	DIAMOND T 412DR (1935-37)		10	12	241/6	805C (1941-42)		8 20	12	

KEEP 'EM ROLLING 1943 FLEET OPERATORS' REFERENCE ANNUAL

ENGINE SERVICE

SPECIFICATIONS

INCLUDING DATA FOR **ENGINE TUNE-UP**

ABBREVIATIONS

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ABBRE

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*—Severe Service .018
Al—Aluminum
As—Strut Type Aluminum
As—Anodized Aluminum
CA—Cast Alloy
CI—Cast Iron
St—Alloy Steel
TP—Tin Plated Cast Iron
C—Cold
Bot—Bottom

Top—Top
AC—AC
AL—Auto-Life
Ch—Champion
1—46 for AF240, AFP240, CCV100
Iron Alloy for 1942 models
1†—Commercial 8AB, 18mm. plugs
for 1941 models; J9, 14mm for
1942 models
Q—Qts.

Bud—Buda
Cat—Caterpillar
Con—Continental
Cum—Cummins
Her—Hercules
Lye—Lyeoming
Opt—Optional
Var—Variable
Wau—Waukesha
A—.019-.023

TRUCK MAKE AND MODEL	Engine Make and	Number of Cylinders, Bore	Material	ng Rods 1 From	Normal Oil Pressure Lb. at	Or B-B	ake live lens efore After	appet e for ming	CLEA	ATING PPET RANCE ess noted)		SPARK	PLUG		Point Gap	Occurs oTC	Occurs Fly- I Teeth °TC ore A-After	saure at
	Model	and Stroke	Piston N	Connecting Removed Fr	M.P.H. or R.P.M.	°TC	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	Breaker	Spark Occ B-Before	Spark Occ Wheel Te B-Before	Comp. Pr
STOCAR RM. DF. RHT. DT. DFT. RHD. DP AD DH UD.															_			
RM, DF, RHT, DT, DFT, RHD, DP, 6D, DH, UD, UDF, UDT, UDP, 6RH, 6DF, 8UD, UDFT N, NT, 6N, UN, UNT, 6UN, 4X4DF, 4X4DF, NF, NFT, 6NF, UNF, UNFT, 6UNF, S, US, N6OC,	Own 358 Own 404	6-4x43/4 6-41/4x43/4		Top Top	40-2200 40-2200	TC TC	TC TC	.020	.015 .015	.018	Ch	2 COM 2 COM	7/8 7/8	P	D	81/2°B 2°B	14B 14B	9
4XANF. TF, TFT, 6TF RM, RL, RMT (1937). DP, D., 1TR, 6X2RL, RLD, UD, 1UTR, UPD, 6X2UD	Own 453 Wau 6RB Own 315	6-4½x4¾ 6-5x5¾ 6-3¾x4¾	Ala Ala Ala	Top Top	40-2200 40-1750 40-2200	10°A	TC 38/4A TC	.020 .020 .020	.015 .006 .015	.018 .010	Ch Ch	2 COM 2 COM 8 COM	7/8 7/8 18mm	P	Z	2°B 9°B 8½°B	14B 314B 116B	8 8 9
	Own 358	6-4x434	Ala	Тор	40-2200		TC	.020	.015	.018	Ch	0	3/6	P	D	81/4°B	1.1.B	9
DF, 2TR, 6X2DF, DH, UDF, 2UTR, 6XEUN, 4X4DF, 4X4N, 6X4DF (1937). 6X2UNF, 3UTR, 4UTR, 3TR, 4TR, 6X2NF, C,	Own 404	6-41/4×43/4	Ala	Тор	40-2200	тс	TC	.020	.015	.018	Ch	0	3/8	P	z	2°B	1/4B	1
0AZUNF, 3U1H, 4U1H, 31H, 41H, 6XZNF, C, 4XANF (1937) 6T, UT, UTT, 8UT, N75C, 4X4S (1938-37), C, T, TT, 8X3T, 8X2UT, 5TR, SUTR, 8X4TO 6X4UTO, 6XAUTD, 8X4TC, 6X4TD	Own 453	8-4½x4¾	Ala	Тор	40-2200	TC	тс	,020	.015	.018	Ch	0	₹8	P	z	2°B	14B	8
6X4UTD, 6X4TC, 6X4TD	Own 501 Her JXB	6-41/x51/ 6-35/x41/ 6-31/x41/	Ain Ain	Top Top	40-2200 35-2600	2°A	тс	.020	.015	.018	Ch	8 COM	18mm	PPP	Z	2°B TC	TC	00 00 00
RR LIPP	Her JXC Own 315	6-33/4x43/	Ais	Top Top	35-2600 40-2200	TC	TC	.010	.006	.008	Ch	8 COM	18mm	P	D	TC 9°B	TC 1¾B	1
RL, RLS, 1TR, RLD, DP, 6X2RL, URL, URLS, UD, 1UTR, UDP, 6X2UD DF, N, 2TR, DH, 6X2DF, 6X4DF, UDF, UN, 2UTR,	Own 358	8-4x43/4	Ala	Top	40-2200	TC	TC	.018	.015	.018	Ch	2 COM	3/8	P		9°B	1¼B	1
6X2UN, 4X4DF NF, 3TR, 4TR, S, 6X2NF, UNF, 3UTR, 4UTR, US,	Own 408	6-41-x51/4		Тор	40-2200	TC	TC	.018	.015	.018	Ch	8 COM	18mm	P		2°B	1/4B	
Can Cant Han Hart	Own 447 Own 315 Own 331	6-41/4x51/4 6-36/4x48/4 6-33/4x5	Ala Ala	Top Top	40-2200 40-2600 40-2600	TC	TC TC TC	.018 .020 .020	.015 .015 .015	.018 .018	Ch Ch	8 COM 8 COM 8 COM	18mm 18mm 18mm	PP	D	2°B 6°B 6°B	14B 11B	
030, C30T, U30, U30T (1941) C40, C40T, C40D, C4062, C4064, U40, U40T, U40D, U4062, C50, C50D, U50, C60, U60, U60D. C40, C40T, C40D, C4062, C4064, U40, U40T, U40D,	Own 358	6-4x434	Ala	Тор	40-2600		TC	.020	.015	.018	Ch		18mm	P	D	6°B	HB .	
U4062, C501, C50D, U50, C60, U60, U60D (1941)	Own 377	6-4x5	Ala	Тор	40-2600		TC	.020	.015	.018	Ch	8 COM	18mm	P	D	2°B	1/4B	
C60T, C6044, C70, C70D, C7062, C7064, U60T, Ú70, U7062, U7064	Own 408	8-4-1-x514	Ala	Тор	40-2400	TC	TC	.020	.015	.018	Ch	8 COM	18mm	P	D	2°B	1/4B	
C7044, C70T, C80, C80T, C80D, C9062, U70T, U80, U80T, U80D, U8062 C8064, C8044, C90, C90T, C90D, C9062, C9064, U90,	Own 447	6-41/4×51/4	Ala	Тор	40-2400	TC	TC	.018	.015	.018	Ch	8 COM	18mm	P	D	2°B	1/4B	
U907, U90D, U8064, U9062, U9064	Own 501 Her HXB	6-41/2x51/4 6-5x6	Ala Ala	Top Top	40-2400 40-2600		TC TC	.020	.015	.018	Ch	8 COM		P	D	2°B TC	1/4B TC	
DC100T, DC100D, DC10044, DC10062, DC10064, DU100T, DU10082, DU10064	Cum HB6	6-47/x6	CI	Тор	40-1900				.012	.012					-			
NTAM		7,810			10 1000					74.2								
(1938-39) (1940)	Own Own	4-2x3 4-2½x3½	AI	Top Top	8.5-30 30-50	19°B	414B 414B	.011	.011	.012	Ch	HIO	14mm 14mm	.025	.022		TC	1
ROCKWAY	0010		00	-	00.00	2°B	1/0		010	010	Ch	8 COM	18mm	.025	000	000	01/0	
ROCKWAY 78 (1938-40) 77, 90X (1936-40) 13, 89, 92, 94 (1936-40) 125X (1936-40) 196, 110, 130 (1936-40) 145 (1936-40) 160X4, 150X5 (1938-40) 160X4, 150X5 (1938-40) 170X (1936-40) 170X (1936-40) 175X, 180X-SBT Spec., 220X (1936-40) 175X, 180X-SBT Spec., 220X (1936-40) 174, 122 (1936-40) 174, 128 (1936-40)	Con 28B	6-3-4x43/6-33/8x45/8	Al	Top Top	20-20	5°B	11/2B 11/2B 11/2B	.015	.010	.010	Ch	0 COM 8 COM	18mm	.025	.020	5°B	2½B 1½B 1½B	
125X (1936–40)	Con 31B	6-3-1-x43-6 6-3-1-x43-6 6-3-1-x43-6 6-4-1-x43-6 6-4-1-x43-6 6-4-1-x43-6 6-4-1-x43-6 6-3-1-x43-6 6-3-1-x43-6 6-3-1-x43-6	Ĉi	Top	30-20	8°B	28/4B	.012	.008	.010	Ch	8 COM	18mm	.025	.020	81/2°B	3B	
/6, 110, 130 (1936-40)	Con 29B Con 31B	6-31/6x41/2	CI	Top Top	30-20 30-20	8°B	234B 234B 234B	.015	.012	.012	Ch	8 COM	18mm	.025	.020	81/2°B	3B 3B	
150X4, 150X5 (1936-40) 160X, 180XSBT, 165X (1936-40)	Con 32B Con 32B	6-41/6x41/6	CI	Top Top	30-20 30-20	8°B	234B 284B	.015	.012	.012	Ch	8 COM	18mm 18mm	.025	.020	81/2°B	3B 3B	
170X (1938-40)	Con 33B	6-41/8×43/4	A	Top	30-20	5°B 5°B	28 28	.014	.012	.015	Ch	8 COM	18mm 18mm	.025	.020	15°B 15°B	516B	
95X (1938-40)	Con 33B	6-41/8×43/4	Al	Top	30-20 30-20	5°B	28	.014	.012	.015	Ch	8 COM	18mm	.025	.020	15°B	514B 514B	
240X, 260X (1936-40) 112, 128 (1938-40)	Con 35B Con 38B	6-41/2x51/4 6-33/x48/	AI	Top Top	30-20 30-20	5°B 8°B	2B 23/4B	.014	.012	.015	Ch	8 COM		.025		15°B 814°B	51/2B 3B	
78 (1941)	Con 24B	6-3-4x4%	Ĉi	Top	35-2000		TC	.014	.014C	.012	Ch	6 COM	18mm	.025	.020	TC	35	

Fleet shops are paying greater attention to factory recommendations for engine tune-up and adjustment because the difference between approximate and accurate adjustments usually means wasteful gasoline and oil consumption or more frequent renewal of vital parts.

These specications have been compiled to provide key information for tune-up and general engine reconditioning work as recommended by truck and engine manufacturers. From these data the maintenance man can determine at a glance an engine's exact compression pressure at cranking speed; ignition timing as determined by flywheel markings, breaker point gap; spark plug data; valve timing by flywheel markings and intake tappet clearance for intake and exhaust valves; oil pressure based on road speed or r.p.m's, etc.



98 95

98 95 95

96

BREVIATIONS
S-.023-.028
B-If spark plug is J9 (14mm), breaker point gap is .018-.022
Z-.018-.022
ZZ-.025-.030
V-.012-.014
V-.011-.012C
VY-.014-.016
SS-Semi-Steel
COM-Commercial

H—.015-.025 HH—.013-.015C E—.018-.020 D—.018-.024

K--.020-.025 M—5°B for CC450, 3°B for CF450 P—.018-.023 R—.028-.032 T—.025-.028







OPERATING



TRUCK MAKE	Engine Make and	Number of Cylinders, Bore	Material	ng Rods From	Normal Oil Pressure Lb. at	Op B-B	alve ens efore After	ppet for ning	TAP	ATING PET RANCE (as noted)		SPARK	PLUG		Point Gap	Occurs oTC	curs Fly- seth °TC A-Afte	Speed Speed
	Model	and Stroke	Piston M	Connecting	M.P.H. or R.P.M.	oTc o⊤	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	Breaker	Spark Occ B-Before	Spark Occurs Wheel Teeth	Comp. Pre
BROCKWAY—Continued 83, 88, 92, 94 (1941) 112-126 (1941) 148, 147, 152 (1941) 153, 154, 162 (1941) 158, 168 (1941) 170X, 196X (1941) 170X, 220X (1941) 240X, 260X (1941)	Con 25B Con 38B Con 40B Con 41B Con 42B Con 33B Con 34B Con 35B	6-3-1-x43-6 6-3-4-x43-6 6-4x43-6 6-4-2-x43-6 6-4-2-x43-6 6-4-2-x43-6 6-4-2-x43-6 6-4-2-x53-4	Al	Tep Top Top Top Top Top Top	40-2000 40-2000 55-2500 55-2500 30-2300 30-2300 30-2300	61°B 61°B 61°B 5°B	TC	.014 .0175 .0175 .022 .022 .014 .014	.014C .017C .017C .017C .017C .018C	.014C .024C .024C .024C .024C .018C	Ch Ch Ch Ch Ch	6 COM 6 COM 6 COM 6 COM 6 COM 6 COM 6 COM 6 COM	18mm 18mm 18mm 18mm 18mm 18mm 18mm	.025 .025 .025 .025 .025 .025 .025	.020 .020 .020 .020 .020	6°B		
ONEVROLET 36, 136 Ten (1934) 36, 136 Ten (1935) 46, 136 Ten (1936) 46, 136 Ten (1937) 46, 36, 1, 136 Ten (1938) 47, 36, 1, 136 Ten (1939) 48, 36, 1, 136 Ten (1940) 49, 36, 1, 1, 136 Ten (1941)	Own Own Own Own Own Own Own	6-3-4x4 6-3-4x4 6-3-4x4 6-3-4x34 6-3-4x334 6-3-4x334 6-3-4x334	CI	Top	131-2821 131-2621 131-2621 14-2000 14-2000	9°B 9°B	1½B 3B 3½B 3½B 3½B 3½B 1½B 1½B	.006 .006 .006 .006 .006 .006	.006 .006 .006 .006 .006 .006 .006	.013 .013 .013 .013 .013 .013 .013	AC AC AC AC AC	K10 K11 K11 K11 46 44 44	14mm 14mm 14mm 14mm 14mm 14mm 14mm	.032 .032 .040 .040 .040	.018 .018 .018 .019 .018 .018	5°B 5°B 5°B 5°B 5°B	3½B 1¾B 1¾B 2B 2B 2B 2B 2B	83 86 112 90 90 90 90
CORBITT 12B (1936). F15, 14B (1936-37) 14BT, Series 18, F18, Series 22 (1936-37). Series 27D (1936). F27, Series 35, 40 (1938-37). F12 (1938). F23 (1936). F23 (1936). F24 (1937). 18BT, 22B (1937). 22BT, F23 (1937). 27DT (1937). 13B, F12 (1937-41). 17B, 14BT, F12 (1937-41). 21B, F18 (1937-41). 22BT, F27 (1937-41). 22BT, F27 (1937-41). 22BT, F27 (1937-41). 27DT, F35 (1937-41). 27DT, F36 (1937-41). F14 (1937-39). 17BT, F19 (1937-41). F13 (1940-41). D27BT (1940-41). D27BT (1940-41).	Wau 6RL Wau 6BK Wau 6BK Wau 6BK Wau 6SRL Wau 6SRL Wau 6SRL Wau 6SRL Wau 6RB Lyc WFC Wau 6RB Lyc MFC Con 20-R Con 21-R Con A6244 Con M6290 Con E603 Con E603 Con 21R Con 22R Con M6271 Con M6330 Con 20R Cum A600 Cum H86	6-31-4x41-4 6-35-4x41-4 6-45-6x51-5 6-45-6x51-5 6-45-6x51-6 6-5x53-4 6-41-4x43-6 6-41-4x43-6 6-31-4x43-6 6-31-4x43-6 6-31-4x43-6 6-31-4x43-6 6-31-4x43-6 6-31-4x43-6 6-31-4x43-6 6-41-4x43-6 6-41-4x43-6 6-41-6x43-6 6-41-6x43-6 6-41-6x43-6	AI A	Top Top Top Top Top Top Top Top Top Top	40-1500 40-1500	7°A 6°A 7°A 6°A 7°A 9°A 7°A 5°B 5°B 5°B 5°B 5°B 5°B 5°B	TC TC 1.9B 1.9B 1.9B 2.34B 2.3	.010 .010 .008 .009 .006 .010 .009 .006 .010 .008 .01365 .01365 .012 .012 .012 .014 .014	.012014 .008010 .008010 .008010 .010012 .008010 .010012 .008010	.010012 .012014 .012014 .016018 .016018 .016018 .016018 .010012 .012014 .017018 .012012 .012 .015 .015	AC AC AC AC AC AC AC	D8-D10 D8-D10 D8-D10 L8-L10 L8-L10 L8-L10 L8-L10 L8-L10 L8-L10 D8-D10	18mm 18mm 7/8 7/8 18mm 7/8 1/8 14mm 18mm 18mm 18mm 18mm 18mm 18mm 18m	.030 .030 .030 .030 .030 .030 .030	.025 .025 .025 .025 .025 .025 .025 .025	7°B 5°B 7°B 5°B 7°B 5°B 8°B 8°B 10°B 10°B 10°B	TC TC 11/4B 11/4B 11/4B 23/4B 23/4B 23/4B 13/4B 13/4B 13/4B 13/4B	112 112 89 80 80 81 112 89 102 99 78 78
DIAMOND T 211, 227, 243, 212A, 212B, 228, 401, 402, 404, 405 (1935- 1938). 220, 311, 221, 244, 313, 406, 507, 508, 611 (1935-38). 312, 351C, 320, 353, 807, 612, 613 (1935-38). 352, 380, 614 (1935-38), 614, 614C (1939). 412B (1935). 412B (1935). 412B (1935). 301, 401 (1937-38), 201C (1939). 304, 401 (1937-38), 305, 305C, 306, 306C (1939). 404, 404C (1939). 404, 404C (1939). 405, 508, 509C (1839). 201 (1940 & Early 1941). 305, 306, 306SC (1940 & Early 1941). 404, 404SC (1940).	Her JXA Her JXB Her JXC Her JXC Her JXC Her WXLC3 Her QXB3 Her QXB3 Her JXE3 Her JXE3 Her JXE3 Her JXB3	8-33-4x43-6-35-4x43-6-33-4x43-6-35-25-25-25-25-25-25-25-25-25-25-25-25-25	CI AI	Top Top Top Top Top Top Top Top Top Top	25-30 25-30 25-30 25-30 25-30 25-30 25-30 25-30 25-30 25-35 25-35	5°A 5°A 5°A 2°A 5°A 5°A 5°A 5°A	115AAA 115AAA 115AAA 115AAA 115AAA 115AAA 115AA	.008 .006 .008 .008 .010 .010 .006 .006 .008	.008 .008 .008 .008 .006 .006 .006 .008 .008	.010 .010 .010 .010 .010 .008 .008 .008	AC AC AC AC AC AC AC AC	76 76 76 76 76 76 75 75 73 73 44 44 44	76 76 76 76 76 76 76 76 76 76 76 76 76 7		.020 .020 .020 .020 .020 .020 .020 .020	TC TC TC TC TC TC	TC T	963-4 103 102 109 106 100



(CONTINUED) ENGINE SERVICE SP

ABBREVIATIONS

ASBREVIA \$-.00 8-If b z-.00 zz-... y-.0 yy-... ss-... com

GEN T

Bud—Buda
Cat—Caterpillar
Con—Continental
Cum—Cummins
Her—Hercules
Lye—Lyeoming
Opt—Optional
Var -Variable
Wau—Waukesha
A—.019-.023

*—Severe Service .018
Al—Aluminum
As—Strut Type Aluminum
CA—Cast Alloy
CI—Cast Iron
St—Alloy Steel
TP—Tin Plated Cast Iron
C—Cold
Bot—Bottom

Top—Top
AC—AC
AL—Auto-Life
Ch—Champion
†—46 for AF240, AFP240, CCV100
I-mon Alloy for 1942 models
††—Commercial 8AB, 18mm. plugs
for 1941 models; J9, 14mm for
1942 models
Q—Qts.

TRUCK MAKE AND MODEL	Engine Make and	Number of Cylinders, Bore	Material	ng Rods From	Normal Oil Pressure Lb. at	Op B-B	take alve ens efore After	uppet o for ning	CLEA	ATING PPET RANCE ess noted)		SPARK	PLUG		Point Gap	Occurs oTC	Decurs Fly- Teeth oTC	Speed at
	Model	and Stroke	Piston M	Connecting I Removed Fr	M.P.H. or R.P.M.	°TC	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Siza	Gap	5	Spark Occ B-Before	Spark Occurs I Wheel Teeth	Comp. Pr
DIAMOND T—Continued 406, 508, 509C (1940-41) 612, 612C (1940-41) 614, 614C (1940-41) 404C (1940-41) 803C, 804C, 805, 806 (1940-41) 800 (1940-41) 201, 306, 306SC (Late 1941 & 1942)	Her JXB Her JXC Her JXD Her JXE3 Her WXLC3 Her RXLC3 Her QXD3	6-3%x414 6-3%x414 6-4x414 6-314x414 6-414x4514 6-454x514 6-3;4x414	AI AI	Top Top Top Top Top Top	25-35 25-35 25-35 25-35 25-35 25-35 25-35	2°A 2°A 5°A 2°A 5°A 2°A 5°A	34A 34A 34A 115A 34A	.010 .010 .010 .010 .010 .010	.008 .008 .006 .008 .008 .008	.010 .010 .010 .010 .010 .010	AC AC AC AC AC AC	44 44 44 44 44 44 44	14mm 14mm 14mm 14mm 14mm 14mm 14mm	.027 .027 .027 .027 .027 .027	.020 .020 .020 .020	TC TC TC TC	TC TC TC TC TC	****
201, 306, 306SC (Late 1941 & 1942) DODGE KC, KCL, KH, Series LC K2, K33, K34. K35, K36, K37, K36, K46, K46, K47, K48 K50, K51, K52, K70, K71, K72. LE Series LF Series LF Series LF Series R60V, K51V, K62V, K60V, K61V, K62V MC, RC (1937-33) RD, MD Series (1937-38) RF, MF Series (1937-38) RF, MF Series (1937-38) RG, RH, MG, MH Series (1937-38) TG (1939) TE (1939) TE (1939) TF (1939) TF (1939) TF, TT, TK (1939) TL, TK (1939) TL, TK (1939) VC (1940) VD (1940) VD (1940) VD (1940) VD (1940) VD, VK, W, WK (1940-41) VL, VK, WL, WK (1940-41) VL, VK, WL, WK (1940-41) WC (1941) WC, WH, WGM, WHM (1941) WG, WH, WGM, WHM (1942) WG, WH, WGM, WHM (1942) WL, WK (1942) WC, WLD, WKD (1942) WC, WLD, WKD (1942) WC, WK (1942) WC, WKD (1942) WC, WKD (1942) WLD, WKD (1942)	Own 201 cu in. Own 217 cu.in. Own 247 cu.in. Own 309 cu.in. Own 309 cu.in. Own 309 cu.in. Own 217 cu.in. Own 217 cu.in. Own 218 cu.in. Own 218 cu.in. Own 218 cu.in. Own 218 cu.in. Own 228 cu.in. Own 231 cu.in. Own 218 cu.in. Own 220 cu.in. Own 231 cu.in. Own 241 cu.in. Own 252 cu.in. Own 252 cu.in. Own 253 cu.in. Own 218 cu.in. Own 230 cu.in. Own 231 cu.in. Own 231 cu.in. Own 231 cu.in. Own 331 cu.in.	8-31/44/96 8-33/44/96 8-34/44/96 8-34/44/96 8-34/44/96 8-34/44/96	Alsa Asa Asa Asa Asa Asa Asa Asa Asa Asa A	Top	30-40-30 30-	6°A Tc°A 6°A Tc°A Tc°A Tc°A Tc°A Tc°A Tc°A Tc°A 12°B 8°B 8°B 8°B 8°B 8°B 8°B 8°B 12°B 12°B 12°B 12°B 12°B 12°B 12°B	5B 2½A 15B 5B 5B 5B 5B 5B 5B	.011 .011 .011 .011 .010 .010 .010 .014 .014	.008 .008 .008 .008 .008 .008 .008 .008	.008 .008 .008 .010 .010 .010 .010 .012 .012 .012 .012	AGC AGC ACC Chh CCh CCh CCh ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	K9 K9 K9 K9 K9 K9 K9 K9 L8	14mm 14mm 14mm 14mm 14mm 14mm 14mm 14mm	.025 .025 .025 .025 .025 .025 .025 .025	.020 .020 .020 .020 .020 .020 .020 .020	2°A 14°B 3°A 2°C 3°B 3°C 4°B 8°B 1C 1°C 1°C 1°C 1°C 1°C 1°C 1°C 1°C 1°C	11/4A 3/4A TC 11/4B 11/4A 11/4B 11/4	111 11 111 111 111 111 111 111 11 11 11 11 11 11 11 11 11 11 11 11
EDERAL 15X, 15, 15K, 75, 75H, 75K 16X, 16K, 20, 20K, 21, 22, 80, 80H, 80K 25, 25K, 85, 85H, 85K 30 40, 40F 80, 80F 80, 80F 81, 85K 10 28, 29K, 87H, 59, 89K 40DR 110B, 110W 28, 29, 29K, 87H, 59, 89K 40DR 110B, 110W 28, 11, 11K, 11H 12K, 14K 82, 86 81, 11, M8, M11 (1940-42) 12, 14, M12, M14 (1940) 15, 75 (1940) 18, 29, 80 (1940-42) 25, 85 (1940-42) 29, 29H, 89, 89H (1940-42) 40 (1940) 63, 66 (1940-42) 62, 65 (1940-42) 63, 66 (1940-42) 62, 65 (1940-42) 63, 66 (1940-42) 63, 66 (1940-42) 63, 66 (1940-42) 63, 66 (1940-42) 63, 66 (1941-42) 63, 50 (1941-42) 63, 50 (1941-42) 63, 50 (1941-42) 63, 50 (1941-42)	Her JXB Her JXB Her JXB Wau 6MS Wau 6MS Wau 6MK Wau 6SRK Con W10 Her OOB Her JXC Her JXD Wau 6MK Con 18R Wau 6MK Con 18R Con 2ZR Her JXB Wau 6MKR Wau 6MZR	8-394414 8-394414 8-394414 8-41449 8-41449 8-41549 8-4	CI CI CI CI AI AI AI AI AI	Top	25-1500 35-1500 35-1500 35-1500 35-1500 35-1500 26-2600 26-2600 25-150	5°A 18°A 18°A 18°A 18°A 18°A 15°A 15°A 16°A 17°C 16°A 1	3A 3A TC	.006 .006 .004 .004 .004 .008 .008 .008 .008 .008	.008 .008 .010 .010 .010 .010 .010 .008 .008	.010 .010 .0110 .0112 .0112 .0112 .0112 .0116 .0116 .0116 .0016 .008 .008 .008 .008 .008 .008 .008 .00	AGC	86 88 76 76 76 76 76 76 76 86 86 44 44 44 44 44 44 44 44 44 44 44 44 44		. 025 . 025	. 0200 . 0200	TC T	TC T	
FORD 51, V8 (1935-36) 75, V8(1937) 79, V6 (1937) 817, 8177, 81Y, 81C (1938)		8-3 1 x 3 % 8-2 . 6 x 3 . 2 8-3 1 x 3 % 8-3 1 x 3 %	CA	Top Top Top	30-3200	91°B		Y Y Y	Y	Y	Ch Ch Ch	7 H10 H10 H10	18mm 14mm 18mm 14mm	.025	YY YY YY YY	4°B 4°B 4°B 4°B	1¼B	. 1

ESPECIFICATIONS

IONS

ABBREVIATIONS
S....023-.028
B...If spark plug is J9 (14mm),
breaker point gap is .018-.022
Z...018-.022
ZZ...025-.030
V...012-.014
Y...011-.012C
YY...014-.016
SS...Semi-Steel
COM...Commercial

H—.015-.025 HH—.013-.015C E—.018-.020 D—.018-.024 K—.020-.025 M—5°B for CC450, 3°B for CF450 P—.018-.023 T—.025-.028







TRUCK MAKE AND MODEL	Engine Make and	Number of Cylinders, Bore	laterial	ng Rods	Normal Oil Pressure Lb. at	Op B-Be A-A	ve ens	appet e for ning	OPERA TAP CLEAR (Hot unle	PET		SPARK	PLUG		Point Gap	2	Occurs Fly- I Teeth TC ore A-After	ressure at
	Model	and Stroke	Piston Material	Connecting Rods Removed From	M.P.H. or R.P.M.	°TC	Flywheel Teeth TC	Intake Ti Clearand Valve Tii	(Hot unie	Exhaust	Make	Туре	Size	Gap	ker	Spark Occ B-Before	Spark Occ Wheel Tel B-Before	Comp. Pr
1GC 2GC 1GD 2GD 1GT 2GT 1GU 2GU 1GV	Own Own Own Own Own Own Own	8-2.6x3.2 8-3 tx334 8-3 tx334 8-2.6x3.2 8-3 tx334 8-3 tx34 8-3 tx34 8-3 tx34 4-3 tx34	CA CA St St St St St	Top Top Top Top Top Top Top	30-2000 30-2000 30-2000 30-2000 30-2000 30-2000 30-2000 30-2000	TC TC 9°B TC TC TC TC	TC TC TC TC TC	Y Y Y Y 2 .015 .015	Y Y Y Y 011C 011C	Y Y Y Y -015C -015C	Ch Ch Ch Ch Ch Ch	H10 H10 H10 H10 H10 H10 H9 H9	14mm 14mm 14mm 14mm 14mm 14mm 14mm 14mm	.032	**************************************	4°B 4°B 4°B 4°B 4°B 4°B 4°B 4°B 4°B		111111111111111111111111111111111111111
2GY, 1G8T, 2G8T (1941-42) 21C, 21D, 21T, 21U, 21W, 21Y, 211W, 218T, 218W (1942) 29C, 29D, 29T, 29U, 29W, 29Y, 291W, 298T, 298W (1942)	Own	6-3.3x4.4 8-316x334 8-316x334	St	Top Top	30-2000 30-2000 30-2000	TC	TC TC	.015 .015	.011C	.015C	Ch	H9	14mm 14mm	.025	YY	4°B		
WD MJ8 M7, M6x6, T60, T65 (1939) H5, T-26 HA, T-30 HM, HH6, HG, HR, T-32 CUA, CU SUA, SU YU, MJ6, MJ6X6, T40 M6 M7, T60, T65, M6X6 M10	Wau 6BK Wau 6BZ Wau 6MKR Wau 6MKR Wau 6SRLR Wau 6SRLR Wau 6SRKR Wau 6-140GK Wau 6-145GK	6-43 5x5 1 6-5x5 3 4 6-33 4x 4 1 6-4x 4 1 6-41 5x 4 3 6-42 5x5 1 6-45 5x5 1 6-45 5x5 1 6-53 4x 6 6-53 4x 6	AI AI AI AI AI AI	Top Top Top Top Top Top Top Top	40-48 35-1000 40-2800 40-2500 40-2500 40-2250 40-2250 40-2250 40-2250 40-2000	10°A 5A 5A 8A 8A 8A 8A 5A	15B 4A	.008 .008 .010 .010 .004 .004 .004 .006 .006	.012 .007 .010 .010 .008 .008 .008 .008 .014 .012	.020 .009 .014 .014 .014 .016 .016 .016 .024	Ch Ch Ch Ch Ch Ch Ch Ch	J8 7 COM 7 COM 7 COM 7 COM 1 COM 1 COM COM COM O		.025 .025 .025 .025 .025 .025	.018 .018 .018 .018 .018 .018 .018	23°B 23°B 24°B 24°B 22°B 18°B		
ENERAL MOTORS 184, T78, T78T (1935) 183, T75, T75H (1935) 151, T51W, T74, T74H (1935) 151, T51W, T74, T74H (1935) 1743, T73, T73H (1935) 1716 (1935) 1718, T23 (1935) 1718, T23 (1935) 1723H, T33 (1936) 1746H, T46 (1935) 1741, T16, T16H (1936) 1741, T16, T16H (1936) 1741, T16, T16H (1936) 1744, T1936) 1745, T73, T73H (1936) 1747, T73H (1936) 1747, T73H (1936) 1748, T18, T18H, F18H (1937) 1741, T18, T18, T18H, F18H (1937) 1741, T18, T34, T33H (1937) 1745, F23, T23H, F23H (1937) 1746, F46 (1937) 1746, F46 (1937) 1741, T415, T15, T155 (1938) 1741, T145, T15, T155 (1938) 1741, T145, T15, T155 (1938) 1741, T145, T15, T155 (1938) 1741, T141, T15, T15, T16H (1937) 1741, T174, T18, T18, T18H (1937) 1741, T18, T18, T18, T18H (1937) 1741, T174, T18, T18, T18H (1937) 1741, T174, T18, T18, T18H (1938) 1741, T174, T18, T18, T18H (1938) 1741, T18, T18, T18, T18H (1938) 1741, T474, T28, T28H (1938) 1741, T474, T28, T28H (1938) 1741, T474, T28, T28H (1938) 1741, T18, T18, T18, T18H (1938) 1741, T18, T18, T18, T18, T18, T18, T18, T1	Own 221 Own 257 Own 258 Own 331 Own 400 Own 400 Own 400 Own 239 Own 331 Own 400 Own 239 Own 331 Own 450 Own 257 Own 257 Own 257 Own 257 Own 257 Own 258 Own 257 Own 250 Own 257 Own 250 Own 25	6 49 6 x 5 6 4 4 6 x 5 6 6 3 6 x 4 6 4 6 x 5 6 6 3 6 x 4 6 4 6 x 5 6 6 3 6 x 4 6 4 6 x 5 6 6 3 6 x 4 6 4 6 x 5 6 6 3 6 x 4 6 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 4 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 3 6 x 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6		Top Bot Top Top Top Top Top Top Top Top Top Top	42- 35- 30- 30- 30- 30- 30- 30- 35- 42- 42- 30- 35- 42- 42- 42- 42- 42- 42- 42- 42- 42- 42	18°A 00 28°E 00 28°E	10 B	.012 .012 .012 .012 .012 .012 .012 .012	V V 012 .011 V V V V .006 .006	.012 .012 .012 .012 .012 .012 .012 .012	AGC	K7	18mm 18mm 18mm 18mm 18mm 18mm 14 na 18mm 18mm 18mm 18mm 18mm 18mm 18mm 18m	. 033 . 033 . 033 . 023 . 033 . 034 . 035 . 035	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	15°B 15°B 17°B 17°B 17°B 17°B 15°B 15°B 15°B 15°B 15°B 15°B 15°B 15	TC	
CCK350, CCT350, CCV100, CCW350, UP to Engine No. 228-87569 and up CC350, CCT350, CF350, CF350, CCW350, CFW350, Engine No. 238-001 ard up CC400, CC450, CCT400, CF400, CF450, CFT400, CCW400, CFW400, up to Engine No. 248-17848 engine No. 248-17848 and up CCKW350, up to Engine No. 256-02769 and CC450 Spec., CF450 Spec., up to Engine No. 270-11344 engine No. 270-11344 and up AC500, AF550, AC550, AF550 (1939-40); AC520, AF650, AC650, AF650, AC650, AF650, AC650, AF650 (1939-40); AC520, AC600, AF600, AC650, AF650 (1939-40); AC520, AC600, AF600, AC650, AF650 (1939-40); AC520, AC600, AF650, AC650, AF650 (1939-40); AC520, AC600, AC600, AC650, AC650, AF650 (1939-40); AC520, AC600, AC600, AC650, A	Own 228 Own 238 Own 238 Own 248 Own 248 Own 256 Own 256	6-3%x3 6-3%x3 6-35%x3 6-35%x3 6-35%x3 6-35%x3 6-35%x3 6-35%x4 6-35%x4	AI	To To To To To To	0 40-100 0 40-100 0 40-100 0 40-100 0 40-100 0 40-100 0 40-100	00 4°B 00 4°B 00 28°i 00 4°B 00 28°i 00 4°B 00 28°i		.014	.012 .008 .012 .006 .012 .008 .012	.013 .012 .013 .012 .013 .012 .012	AC AC AC AC AC	44 44 44 44 44 44 44 44	14mm 14mm 14mm 14mm 14mm 14mm 14mm 14mm	n .02 n .02 n .02 n .03 n .03 n .03 n .03 n .03	25 D 25 D 25 D 25 D 25 D 25 D 25 D 25 D	3°B 3°B 3°B 3°B 3°B M M		
AF520 (1942). AC700, AF700 (1939-40); AC620, AC700, AC770, AF620, AF700, AY700 (1942)	. Own 308	6-318x4 6-41/6x4			1	00 4°B	1	01					14m	-	25 D			



(CONTINUED) ENGINE SERVICE SPE

S-.023 B-If bro Z-.013 ZZ-.00 V-.01 Y-.01 YY-.0 SS-Sc ABBREVIATIONS

Top—Top
AC—AC
AL—Auto-Life
Ch—Champion
†—46 for AF240, AFP240, CCV100
4—Iron Alloy for 1942 models
††—Commercial 8AB, 18mm. plugs
for 1941 models; J9, 14mm for
1942 models
Q—Qts.

Bud—Buda
Cat—Caterpillar
Con—Continental
Cum—Cummins
Her—Hercules
Lye—Lyeoming
Opt—Optional
Var—Variable
Wau—Waukesha
A—.019-.023

-Severe Se	evice 018
4-Aluminu	m
Strut Ty	pe Aluminum
A—Anodize	d Aluminum
I-Cast Iro	n
St-Alloy Ste	eel
C—Cold	ted Cast Iron
ot-Bottom	

TRUCK MAKE AND MODEL	Engine Make and	Number of Cylinders, Bore	Material	ng Rods From	Normai Oii Pressure Lb. at	Op B-B	ake live ens efore lifter	Appet 9 for ning	TAP	RANCE		SPARK	PLUG		Point Gap	Occurs oTC	curs Fly- both oTC A-After	Speed at
	Model	and Stroke	Piston M	Connecting F	M.P.H. or R.P.M.	oTc otc	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	k g	Spark Oet B-Before	Spark Occ Wheel Ted B-Before	Comp. Pr Cranking
ENERAL MOTORS—Continued AC800, AF800 (1939-40); AC720, AC800, ACX870, AF720, AF800, AY800 (1942). AC850, AF850 (1939-42). AC750, AC850, AF750, AF850, ACX890, AY850.	Own 426 Own 451 Own 477	6-41/4x5 6-43/6x5 6-41/5x5	AI AI	Top Top	40-1000 40-1000 40-1000	8°B		.014 .014 .014	.012 .012 .012	.012 .012 .012	AC AC AC	44 44 44	14mm 14mm 14mm	.025 .025 .025	D	TC TC TC	*****	
RAMM 15 (1937-39), 11. 21 (1940). 25, 30 (1937-39). 40, 45, 50 (1937-39), 46, 56 (1940-42). 55, 70 (1937-39), 71 (1940-42). 75, 95 (1937-39), 76, 36 (1940-42). DJX56, DJX40, DJX70 (1937-39), D46, D56 (1940-42). DJX75, DJX56 (1937-39), D71 (1940-42). 31 41 (1940-42). B6 (1940-42). D76 (1940-42). D76 (1940-42).	Her OXB Her JXA Her JXB Her JXC Her JXC Her JXD Her DJXB Her DJXC Her QXC Her QXC Her WXLC3 Bud 6DT317 Bud 6DT389	6-314x416 6-356x414 6-356x414 6-316x414 6-316x416 6-316x416 6-356x516 6-356x516	CI AI AI AI CI AI	Top Top Top Top Top Top Top Top	26-2600 26-2600 26-2600 26-2600 40-2000 40-2000 26-2600 26-2600 35-1500	5°A 5°A 5°A 12°B 12°B 5°A 2°A 20°B		.008 .008 .008 .008 .016 .016 .016 .016	.008 .008 .008 .008 .006 .016 .016 .008 .006	.010 .010 .010 .010 .010 .016 .016 .010 .010	Ch Ch Die	3 COM 3 COM 3 COM 3 COM 3 COM Die sel 3 COM 3 COM sel sel	801	.025 .025 .025	.020 .020 .020 .020			110 102 101 101 150 150 103 106 160
UG 15. 19 (1939), 19W, 83W (1940); 6B6P-83W (1942). 23. 242, 70. 43A, 43T, 87K, 87O, 43-4, 87K4. 43L, 97L, 97LD, 87Q4 99 18W (1940-41). 23W, 85W (1940-42). 42W, 87W (1940-42). 45-4 192U (1940-42). 45-4 192U (1940-42). 23W, 85W (1941); CB7P (1942). 51-6 (1942).	Wau 6BL Wau 6BK Bud H298 Bud K429 Bud K429 Bud L525 Bud GF6 Wau 6BM Wau 6BZ Wau 6MZR Wau 6BZL Wau 6SRLR Wau 6SRLR Wau 6BZ Wau 6BZ Herc HXC	6-334x44 6-334x45 6-43x45 6-43x45 6-43x5 6-434x6 6-335x44 6-414x48 6-535x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-435x5 6-535x5 6-535x5 6-535x5 6-535x5	CI	Top Top Top Top Top Top Top Top Top Top	30-1000 40-1500 30-1000 30-1000 30-1000 30-1000 40-1500 40-1500 40-1500 40-1500 40-1500 40-1500 40-1500 35-1600	TC TC TC TC TC TC TC TC 10°A 10°A	TC TC TC TC TC TC TC TC 3A TC 3A TC 3A TC	.010 .010 .006 .006 .006 .010 .010 .010	.006008 .010-12 .006 .006 .006 .006 .010-12 .010-12 .010-12 .010-12 .008-10 .008-8 .010-12		Ch Ch Ch Ch Ch Ch Ch Ch Ch Ch	COM 7 COM 7 COM 7 COM 7 COM 7 COM 7 COM 7 COM 7 COM 7 COM 2 COM 2 COM 1 COM 1	18mm 18mm 18mm 18mm 18mm 18mm 18mm 18mm		H H H H .025 .025 .025 .025 .025	25°B 25°B 27°B 30°B 27°B 22°B 22°B 25°B 25°B 25°B 25°B 25°B 22°B 17°B 22°B	8B 8B 914B 1014B 914B 734B 884B 8B 8B 8B 7B 7B 8B 8B	112 112 83 82 84 83 72 112 112 90 112 90 80 78
IDIANA 84, 85, 86, 87 95, 95DR, 95SW75, 95SBT151 17, 17DR, 17SW251, 17SBT251, 19DR 17A, 17ADR, 17ASW251 84.	Her JXB Her JXC Her YXC Her WXC Her OOB	6-35/6x43/ 6-31/4x43/ 6-43/6x43/ 6-4x41/2 4-33/4x41/	AI AI AI AI	Top Top Top Top	26-2600 26-2600 26-2600 26-2600 26-2400	5°A 2°A 2°A	135A 135A 34A 34A 135A	.010 .010 .012 .012 .010	.008 .008 .010 .010	.010 .010 .012 .012 .010		COM 1 COM 1 COM 1 COM 1 COM 1	7/8 7/8 7/8 7/8 7/8	.022 .022 .022 .022	EEE	TC TC TC TC	TC TC TC TC	87 114 91 92
ITERNATIONAL CI, C15, C30, CS30, C30S A1, A2, B2, M2, M3, C10, C20, CS20 B3.	Own HD3 Wau XAH Own FAB2	6-3-4x41 4-35-x41 6-3-4x4 4-31-4x4	CI	Top Bot Bot Top	25-800 20-2200 40-1400 20-600	10°A	TC 3A	.010 .004 .024	.010 .005 .015	.010 .007 .015	AC AC AC	G9 A8 A8 C7	18mm 7/8 7/8 18mm	K	000	6°B 5°B 5°B	134B 134B 134B 134B	95 72 93
NTERNATIONAL CI, C15, C30, C330, C30S A1, A2, B2, M2, M3, C10, C20, C\$20 B3 C5 C35, C35B, C\$35, C\$35B, C\$5T, C\$35T, B4, C46, C\$40, C40T, C40F A4, A5, A6, C50, C50T C55, C55F, C55T, C60, C80T A7, A7F A8 D2, D15 D30, D530, D30B, D\$30B, D\$300, D\$300, D186T, D\$186T D30, D530, D35B, D216T D40. D80, D80 D870, DR346T, D246F, D500 D870, DR346T, D346F, D700 DR70, DR346T, D346F, D700 DR70, DR346T, D346F, D700 DR70, DR346T, D346F, D700 C87, C87, C87, C97, C97, C97, C97, C97, C97, C97, C9	Own GRD175 Own GRD214 Own GRD233 Own BLD250 Own BLD269 Own FBC318 Own FBC361	6-3-1-x4 6-3-4-x41 6-3-4-x45 6-5-5-5-5 6-5-5-5-4 6-3-4-x41 6-3-4-x41 6-3-4-x41 6-3-4-x42 6-4-4-x45	CIAI ALICUITA ALIA ALIA ALIA ALIA ALIA ALIA ALIA A	Bot Bot Topp Bot Bot Topp Topp Topp Topp Topp Topp Topp To	40-140(40-180(40-180) 40-180(40-170(25-800) 25-800 40-120(40-140(40-140) 40-140(40-110(25-800) 25-800 40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(40-180(10°A 10°A 10°A 10°A 10°A 10°A 10°A 10°A	33-2A 43-5A 41-5A TC TC	.016 .016 .011 .020 .020 .023 .023 .016 .016	.015 .015 .015 .011 .010-12 .010-12 .015 .015 .015 .015 .015 .015 .015 .015	.015 .015 .015 .013 .013 .012-14 .015015 .015 .015 .015 .015 .015 .015 .015	AC A	A8 A8 A8 A8 A8 D7 D7 A6 A9 A9 A9 A9 A9 A9 A9 A9 A9 A9 A9 A9 A9	18mm 7/6 7/6 7/6 7/6 7/6 7/6 18mm 18mm 7/6 7/6 7/6 7/6 7/6 7/6 7/6 7/6 7/6 7/6	KKKKKKKKKKKKKKKRRRR	000000000000000000000000000000000000000	5°B 10°B 5°B 5°B 6°B 3°B 10°B 10°B 10°B 4°B 4°B 4°B 3°B 10°B 10°B 6°B 10°B		100 100 111 111 110 9
KENWORTH 88, 89, 89SBT, 69SW, 90 127. 128. 1468. 186. 241. 513 (1938). 525, 526, 527, 525, 541, 542 (1938–40-41-42). 529, 530, 631, 532, 539, 540 (1938).	Her JXC Her WXC Her WXC2	8-33/441/ 8-44/4/ 8-41/441/ 0-41/441/ 8-41/445/ 8-41/445/ 8-41/445/ 8-41/445/ 8-41/445/ 8-41/445/	AI AI	Top Top Top	26-260 25-260 26-260 26-260 26-260 26-260 25-100 25-100	0 5°A 0 2°A 0 2°A 0 2°A 0 2°A 0 5°A 0 10°B 0 TC		.006	.008 .008 .006 .006 .006 .008 .008	.008 .010 .010 .010 .010 .010 .012 .008	Ch Ch Ch	1 COM 1 COM 1 COM 1 COM	7/6 1/6 3/8	.02 .02 .02 .02 .02 .02	5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 5 .02	O TC		

ESPECIFICATIONS

IONS ABBREVIATIONS

SREVIATIONS
S-.023-028
B-If spark plug is J9 (14mm),
breaker point gap is .018-.022
Z-.018-.022
ZZ-.025-.030
V-.012-.014
Y-.011-.012C
YY-.014-.016
SS-Semi-Steel
COM-Commercial

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H—.015-.025 HH—.013-.015C E—.018-.020 D—.018-.024 K—.020-.025 M—5°B for CC450, 3°B for CF450 P—.018-.023 T—.025-.032 T—.025-.028







TRUCK MAKE	Engine Make and	Number of Cylinders, Bore	Material	g Rode From	Normal Oil Pressure Lb. at	Op B-B	ake live ens efere lifter	ppet for ing	OPER/ TAP CLEAF (Hot unle	PET		SPARK	PLUG		Point Gap	5	Occurs Fly- Tooth °TC ore A-After	200
AND MODEL	Model	and Stroke	Piston Ms	Connecting Removed Fr	M.P.H. or R.P.M.	oTc	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	Breaker F	Spark Oc B-Before	Spark Oct Wheel To B-Before	Comp. Pr Cranking
536, 537, 538, 543, 544, 545, 560, 561, 562, 563 (1940-42) 505, 506, 507, 508, 509, 513, 514, 515, 516 (1941-42)	Cum ma4	6-334x414 6-414x434 8-4x414 4-476x6	AI AI CI	Top Top Top	26-2800 26-2800 26-2600 55-	2ºA		.006	.006 .006 .008 .012	.006 .010 .010		Die	1/8		.020	16°B TC		
510, 511, 512, 519, 520, 521, 522, 523, 524, 552, 548, 549, 550 (1941-42), 549, 550 (1941-42), 548, 550 (1941-42), 543, 544, 545, 546, 559 (1941-42), 529, 530, 531, 532 (1941-42), 556 (1942), 564, 565, 566, 567 (1941-42)	Cum HBS6 Cum AA600 Wau 6MZR	6-47/4x6 6-47/4x6 6-47/4x6 6-4x5 6-41/4x43/4 6-41/4x51/2	CI CI CI AI	Top Top Top Top Top	55- 55- 55- 55- 40-1500 15-45				.025 .025 .025 .025	.025 .025 .025 .014 .010		Die	sei sei sei 14mm	.020				
564, 565, 566, 567 (1941-42) LA FRANCE REPUBLIC C3, D4, E4 F4, H6 K1 M4 EH5B, EH5D, EH6B, EH6D FH5B, FH6D, HH7 KH2 MH6	Wau 6BK Wau 6MK Wau 6SRL Wau 6-125 Wau 6BZ Wau 6MZR Wau 6SRLR Wau 6SRKR	6-354x414 6-416x45 6-456x51 6-456x51 6-414x45 6-414x45 6-456x51	AI AI AI AI AI AI	Top Top Top Top Top Top Top	40- 40- 40- 40-1500 40-1500	A°8 C	TC 3A 3A 15B 2A 3A 3A 3A	.010 .004 .004 .010 .010 .004 .004	.004008 .006008 .010012 .010012 .008010	.010012 .012014 .016018 .018020 .014016 .014016	AC AC AC AC AC AC	86 76 85 86 86 86 76 76						
MARMON-HERRINGTON A10-4. A30-4. A40-4. A50-4. TH3100-4. TH310-4. TH310-4. TH310-5. TH310-4. TH310-4. TH310-4. TH310-4. TH310-4. TH310-4. TH310-4. TH310-4. TH310-6. TH320-6. TH320-4. TH320-6. T	Her JXA Her WXC Her WXC3 Her YXC Her YXC3 Her RXC Her HXB Her HXB	6-33/6x43/6-4x43/6-43/6x43/6-45/6x53/6-5x6	AI	Top Top Top Top Top Top Top	26-260 26-260 26-260 26-260 26-260 35-160 35-160	0 2°A 0 2°A 0 2°A 0 2°A 0 2°A 0 5°B 0 5°B	12A 34A 34A 34A 2B 2B	.006 .010 .010 .010 .010 .010 .015 .015	.006 .006 .008 .006 .006 .006 .010	.006 .010 .010 .010 .010 .010 .016 .016	Ch Ch Ch Ch Ch Ch	1 COM 1 COM 1 COM 1 COM 1 COM 1 COM 1 COM 2 COM	3/8 18mm 18mm 18mm 18mm 18mm 18mm		.020 .020 .020 .020 .020 .020	TC TC TC	TC TC TC TC TC TC TC	96 92 92 91 91 103 106 105 96
810-4, C10-4, C20-4, C20-6, DSD200-4, DSD200-6, 830-4, C30-4, C30-6, DSD300-4, DSD300-6, B30-4, C30-6, C30-6, C40-6, DSD300-6, B50-4, C50-6, DSD500-4, DSD500-6, B60-4, C50-4, C50-6, DSD500-4, DSD500-6, B50-4, C55-4, C55, DR4, C60-6, DSD500-6, DSD500-6, DSD500-4, DSD600-6, DSD	Her JXD Her WXC3 Her RXB Her RXB Her RXC	6-3 ³ 4x4 ¹ , 6-3 ³ 4x4 ¹ , 6-4x4 ¹ , 6-4x4 ¹ , 6-4 ¹ 4x4 ¹ , 6-4 ¹ 5x5 ¹ , 6-4 ³ 5x5 ¹ , 6-5x6	Al	Top Top Top Top Top	25 Max 25 Max 25 Max 25 Max 25 Max	2°A 2°A 2°A 2°A	15A 15A 15A 34A 34A 34A 2B	.006 .006 .010 .010 .010	.006 .006 .006 .006 .006	.006 .006 .010 .010 .010	Ch Ch Ch Ch	2 COM 2 COM 8 COM 8 COM 8 COM 8 COM	18mm 18mm 18mm	.025 .025 .025 .025 .025	.020 .020 .020	TC TC TC	TC TC TC TC TC	114 114 92 103 103 103
TH415-4, TH415-6, TH515-4, TH515-6 TH420-4, TH420-6, DSD900-4, DSD900-6. B5-4x4, B6-4x4, B5-6x6, B6-6x6, B5-6x4, B6-6x4 TH520-4, TH520-6, DSD1000-4, DSD1000-6. LD1 (1937), CSA-4, CSB-4, C5-4, C5-4 (1937), C5-6, C-6 (1937).	Her HXB Her HXD Ford V8 Her HXE Ford V8	6-5%x6 8-3 /4 x3% 6-5%x6	AI AI	Top Top Top	25 May 25 May 40 May 25 May 40 May	C. 5°B C. 5°B C. 94°B C. 5°B	2B 2B	.015 .015 Y .015	.010 .010 Y .010	.016 .016 Y .016	Ch Ch Ch	8 COM 7 COM 8 COM 8 COM	18mm 18mm 18mm 18mm	.025 .025 .025	YY	TC TC TC	TC TC TC TC	106 106 95 105 100
LD6. P-4. LD6-4. OT5-4. M5-4. M6-4. M5-6. M6-6.	. Ford 95	8-3 1- x3 8-3 1-	GA CA St St St St St	Top Top Top Top Top	30-200 30-200 30-200 30-200 30-200	O TC O TC O TC	TC TC TC TC	****	*****	*****	Ch Ch Ch Ch	8 COM H10 H10 H10 H10		.025 .025 .025	YY YY YY YY	4°B 4°B 4°B		100 100 100 100 100
M5-COE-4, M6-COE-4, M5-COE-6, M6-COE-6, (1942-43). LLD6, P-4, LLD6-4, OOT5-4, MM5-4, MM6-4, MM5-6, MM6-COE-6, MM6-COE-4, MM6-COE-4, MM5-COE-6, MM6-COE-6 (1942-43). 8LD6, P-4, 6LD6-4, 6OT5-4, 6M5-4, 6M6-4, 6M6-6,	Ford 90	8-316x39					TC	Y	Y	Y	Ch	8 COM	14mm		YY	4°B 4°B		100
6M6-COE-6 (1942-43)	Ford 6-90	6-3.3x4.4			30-200	3°B		.015	.015	.015	Ch	8 COM	14mm	.02	YY	4°B		100
0SHKOSH WLX JCB JD FD, FB-35, FB, W700 B35, B3D, WLD, W300, W2300. C3S, C3D, W400 FC-36, R35, FS, FC, W500, W600 BG3 GD W800 W-400 W-100 W-200 W-200	Her JXC Her JXD Her RXC Her WXC3 Her YXC2 Her RXB Her HXB Her HXE Her HXE Her JXC Her JXC Her JXD	6-41/6x41 6-33/4x41 6-4x41/6 6-41/6x41 6-41/6x41 6-41/6x61 6-61/6x6 6-51/6x6 6-61/6x6 6-45/6x6 6-45/6x6 6-45/6x6	ALAI ALAI ALAI ALAI ALAI CI	Top	26-260 26-260	00 5°A 00 5°A 00 2°A 00 2°A 00 2°A 00 5°B 00 5°B 00 2°A 00 2°A		. 008	008 008 008 008 008 008 008 009 009 009	.010 .010 .010 .010 .010 .010 .010 .016 .010 .010	Ch Ch Ch Ch Ch Ch Ch	1 CON 1 CON 1 CON 1 CON 1 CON 1 CON 1 CON 1 CON 1 CON		.02 .02 .02 .02 .02 .02 .02 .02	5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 5 .02 6 .02 6 .02 6 .02 6 .02	0		95 115 116 110 95 96 110 100 115 110 95 113 115
REO 184, 1D4 18, 1D 21, 2B, 2D 284, 2D4, 21.4 2H, 2J, 2K, 3H, 3J, 3K, 3M 4H, 4J, 4K, 4M	. Own	6-31/x5 6-31/x5 6-31/x5 6-31/x5 6-31/x5 6-31/x5	AI AI AI AI	Bot Bot Bot To Bo	40 Ma 40 Ma 40 Ma 40 Ma 9 40 Ma	X. TC X. TC X. TC X. TC	TC TC TC TC	.012 .012 .012 .013 .013	2 .008 2 .008 2 .008 2 .008	.010 .010 .010 .010 .010	Ch Ch Ch Ch	C7 C7 C7	18mm 18mm 18mm 18mm 18mm	.02 .02 .02	5 .02 5 .02 5 .02 5 .02	0 10°B 0 10°B 0 10°B 0 10°B 0 10°B 0 10°B	4B 3B 3B 4B 4B 4B	80 80 80 80 80



(CONTINUED) ENGINE SERVICE SP

ABBREVIATIONS

ZZ-V-. Y-. YY-SS-COM

WALTI FN (FM (FKM) FB. (FKM) FB. (S4, 65, 61, 701, 712, 730, 701, 712, 730, 740, 750, 770, 7

E BU

Bud—Buda
Cat—Caterpillar
Con—Continental
Cum—Cummins
Her—Hercules
Lye—Lycoming
Opt—Optional
Var—Variable
Wau—Waukesha
A—.019-.023

-Severe Service .018

Al-Aluminum

As-Strut Type Aluminum

CA-Cast Alloy

Cl-Cast Iron

St-Alloy Steel

TP-Tin Plated Cast Iron

C-Cold

Bot-Bottom

Top—Top
AC—AC
AC
AC
AC
AC
AC
AL
Auto-Life
Ch—Champion
1—46 for AF240, AFP240, CCV100
—Iron Alloy for 1942 models
††—Commercial SAB, 18mm. plugs
for 1941 models; J9, 14mm for
1942 models
Q—Qts.

TRUCK MAKE AND MODEL	Engine Make and	Number of Cylinders, Bore	Material	ng Rods From	Normal Oil Pressure Lb. at	Op B-B	ake lve ens efore lifter	uppet o for ning	OPERA TAP CLEAR (Hot unle	PET		SPARK	PLUG		Point Gap	Occurs oTC	curs Fly- seth °TC A-After	
	Model	and Stroke	Piston M	Connecting Removed Fr	M.P.H. or R.P.M.	°Tc	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Турв	Size	Gap	Ker	Spark Occ B-Before	Spark Occurs F Wheel Teeth of B-Before	Comp. Pr
1A4H, 1C4H, 1B4, 1D4, 2D4M (1936)	Own Own	6-3%x4% 6-3%x4%	AI AI	Top Bot	30-2000 40 Max.	5°B	1/2B 2B	.012	.008	.010 .010	Ch Ch		18mm 18mm	.025	.020	10°B	1B 4B	85 85
184H, 104H, 204MH, 284, 204, 214, 215, 315, 315, 3K5, 3HR5, 3JR5, 3KR5 (1936) 4R5, 4J5, 4K5 (1936-1937) 650, 675, 1A4, 1C4 (1937) 1A4H, 1C4H, 1B4, 1D4 (1937) 1B4H, 1D4H (1937) 2B4, 2D4, 2H5, 2J5 (1937) 2B4, 2D4, 2H5, 2J5 (1937) 3H5, 3J5, 3K5, 3HR5, 3JR5, 3KR5 (1937) 450, 450L, 475, 475L (1938) 1A4H, 1C4H, 1B4, 1D4, 1BM7, 2BM7 (1938) 1A4H, 1C4H, 1B4, 1D4, 1BM7, 2BM7 (1938) 1B4H, 1D4H (1938) 2B4, 2D4, 2J5, 2H5, 2L4, 2L7M (1938) 1B4H, 1D4H (1938) 2B4, 2D4, 2J5, 2H5, 2L4, 2L7M (1938) 19 (1940) 20, 21 (1940) 20, 21 (1940) 22 (1940) 22 (1940) 22 (1940) 22 (1941) 4D19 (1941) 6D19 (1941) 6D19 (1941) 6D19 (1941) 23 (1942) 25 (1942) 27 (1942)	Own State Own GC288 Own GC288 Own GC288 Own GC310 Bud 4DT226 Bud 6DT317 Wauk6MKR Wauk6MKR Wauk6MKR	6-35-6x5 6-45-6x49-6 4-3-1-x49-6 6-3-1-x49-6 6-3-5-x41-6 6-3-5-x41-6 6-3-5-x45-6 6-3-5-x5-6 6-3-5-x5-6 6-3-5-x5-6 6-3-5-x5-6 6	AI A	Bot Top Top Bot Bot Bot Top Top Top Top Bot Bot Bot Bot Top Top Top Top Top Top Top Top Top	40 Max. 40 -20 35-20 35-20 35-20 35-20 35-20 35-40-40-40-40-40-40-40-30-40-30-40 30-40 30-40 35-1500	TC TC 2°B 5°B 18°A TC TC 2°B TC 5°B TC 5°B 5°B TC TC 8°B TC TC 8°B	TC TC TC TC TC TC TC TC TC TC TC TC TC T	.012 .006 .012 .012 .012 .012 .012 .012 .012 .012	.008 .008 .008 .008 .008 .008 .008 .008	.010 .010 .010 .010 .010 .010 .010 .010	Ch C	C7 C7 J7 J6 J6 J6 J6 J6 J7 J6 J6 J8 J6 J7 H10 H10 H10	18mm 18mm 14mm 14mm 14mm 14mm 14mm 14mm	.032	.020 .020 .020 .020 .020 .020 .020 .020	812°B 816°B 8°B 6°B 8°B 8°B 8°B 10°B 8°B	48 11/48 14/8 31/48 31/48 31/48 11/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48 31/48	70 90 90 90 90 90 90 90 90 90 90 90 90 90
27 (1942). TERLING FB50 Del, FB60 Del, FB70 Del, FC90, FB70, FBT130	Wauk6SRKR Wau 6BK	6-38/y41/	Al	Top Top	40-1500 40-1500 40-1500	8°A	3A TC 3A	.004	.010	.012 .014016 .014016	Ch	67 86 86	18mm 18mm		.020	TC	тс	91
FERLING FB50 Del, FB60 Del, FB70 Del, FC90, FB70, FBT130 FB80, FD90 FC100, FD97 FC100, FD97 FB7152 FB7152 HC185, HC200, HC250, HC170, HCS210 MB75, MD75, MS75, MD85, MB85 MB90, MD90, JB90, HC105, HBT128, HWS128, HDS12; HD110, HD115, HC115 JAD135, JD137, HD145, HD165, JC137, JC148, HWS149, JC147, JC148, HC147, JC148, HC147, JC148, HC147, JC148, HC147, JC148, HC147, JC148, HC147, JC148, JC147, JC148, HC147, JC148, JC147, JC	Wau 6SRLR	6-43-4x53-6-43-4x43-6-4x43-6-43-4x43-6-	AI CI AI	Top Top Top Top Top Top Top	40- 40- 40- 40- 40- 40- 40- 40- 40- 40-	10°A 42°B 8°A 15°B 10°A 05°A 08°A 05°A	3A 15B 3A 5B	.004 .010 .004 .010 .008 .010 .004 .004	.006009 .010012 .008010 .010012 .006003 .010012 .008010	.016218 .018020 .014010 .014010 .010012 .014010 .014010	AC AC AC AC AC AC AC AC AC AC	78 85 86 D8 76 86 86	1/8 18mm 18mm 18mm 18mm 18mm 18mm	.025 .025 .025 .025 .025				4
HWS235S, HDS236S, HCS225	Wau 6SRKR Wau 6RBR	6-45/8x53/ 6-5x53/4	AI AI	Top Top	40-150 40-150	0 8°A 0 10°A	3A 4A	.004		.01601 .01001		76 76	7/6 7/8	.025				
TEWART 40A (1938) 60A (1938) 61A (1938) 61A (1938) 47A, 50A, 50AS (1938) 47A, 50A, 50AS (1938) 51A (1938) 51A (1938) 58A (1938) 58A (1938) 45GL (1938) 45GL (1938) 45GL (1941-42) 58A, 59A (1941-42)	Con F4162 Con F6170 Con F6218 Wau 62KA Wau 6BM Wau 6BK Con E602 Wau 6MZ Wau 6SRK Wau 6BL Wau 6BZ Wau 6SRKR	4-3-7-x49 6-3x4 6-33-6x43 6-35-6x43 6-43-6x43 6-43-6x53 6-33-5x43 6-43-4x43 6-43-4x43 6-43-4x43 6-43-4x43	CI CI CI A AI A AI A AI A AI A AI	Top Top Top Top Top Top Top Top Top Top	40-280 40-280 40-280 45-280 45-280 40-280 40-280 40-280 40-280	0 2°B 0 2°B 0 8°A 0 TC 0 TC 0 TC 0 8°A 0 10°A 0 TC 0 TC	TC TC 3A	.010 .010 .012 .010 .010 .010 .017 .010 .010 .010		.014 .014 .018 .016 .016 .017 .018 .018 .018	Ch Ch Ch Ch Ch Ch Ch Ch Ch	7 COM 7 COM	18mm 18mm 18mm 18mm 18mm 18mm 18mm 18mm	.025 .025 .025 .025 .025 .025 .025 .025	5 .025 5 .025 5 .025 5 .025 5 .025 5 .025 5 .025	5	TC	
TUDEBAKER 12, T4, T6, T8 2T2, 2M2, 2TB2 (1936) 2W6 2M6, 2M86 (1936) 2W7 (1938) W8, 2W8 (1936) J5 (1937) J16, J15M, J15B (1937) J15, J25M, J25B (1937) J25, J25M, J25B (1937) K30, K30M, J30, J30M (1937-38) K5 (1938) K10 (1938-40) K15, K15B, K15M (1938-40) K20, K20M, K20MB (1938-40) K20, K20M, K20MB (1938-40) K26, K25M, K25MB (1938-40) M5 (1941-42) M5 (1941-42)	Own Own Wau 6BM Wau 6BK Wau 6-116 Own Own Her JXB Her JXD	6-31/4 x 45 6-31/4 x 45 6-35/6 x 41 6-31/4 x 43 6-31/4 x 47 6-31/4 x 47 6-41/4 x 47		Top Top Top Top Top Top	20 Mir 20 Mir 20 Mir 20 Mir 20 Mir 40 Mir 35 Mir 35 Mir	1. 5°A 1. 5°B 1. TC 1. TC 1. 5°B 1. 5°B 1. 5°B 1. 5°B	11/2A TC TC TC 11/4B 11/4A	.010 .020 .010 .010	.006 .016 .012 .012 .0160 .0160 .008	.010 .016 .014 .014 .016 .0160 .0160	Ch Ch Ch Ch Ch Ch	7 8 7 7 6M 8 7B 2 COM 1 COM	18mm 18mm 18mm 18mm 18mm 18mm 18mm	.02 .02 .02 .02 .02	5 .020 5 D 5 D 5 D 5 .020 5 .020 5 .020 5 .020	0 1°B 2°B TC TC 3°B 0 2°B 0 2°B	1B TC TC 1B %4B %4B TC	
K30, K30M, J30, J30M (1937-38) K5 (1938) K10 (1938-40) K15, K15B, K15M (1938-40) K20, K20M, K20MB (1938-40) K25, K25M, K25MB (1938-40) M5 (1941-42) M16 (1941-42)	Her WXC3 Own T Own OT Own IT Her HXB Her HXD Own Own	6-474x4 6-374x4 6-374x4 6-374x4 6-374x4 6-3x4 6-3x4 6-3x4	AI AI AI AI AI	Top Top Top Top Top Top Top	35 Min 40 Min 40 Min 40 Min 35 Min 35 Min 40 Min 40 Min 40 Min	n. 2°A n. 15°E n. 2°E n. 15°E n. 2°A n. 5°A n. 15°E n. 15°E	51/2B 5/8A 11/2A	.020 .010 .010	.006 .0160 .0160 .0160 .006 .006	.006 .0160	Ch Ch Ch Ch Ch Ch	1 COM 8A 8A 8A 7 7 J8B J8B	18mm 18mm 18mm 18mm 18mm 14mm 14mm	.02	5 .02 5 D 5 D 5 D 5 D 5 D 5 D	2°B 2°B 2°B 1°C 1°C 2°B 2°B	TC %B %B %B TC TC	
WALTER FND FMD FKMD, FCKD, FCS. FBS, FBRS.		6-4½x4 6-4½x5 6-4½x5 6-5x5¾			40-150 50-150 50-150	00 8°A	3A A 3A A 3A	.010 .010 .010	.010	.014 .018 .018 .015	AC AC AC		14mn	.02	25 .02 25 .02 25 .02	20 25°A 20 25°A 20 25°A 20 25°A		

CE SPECIFICATIONS

ABBREVIATIONS

TIONS

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| BREVIATIONS | S-023-028 | S-023-028 | S-16 spark plug is J9 (14mm), breaker point gap is .018-.022 | ZZ-.018-.022 | ZZ-.025-.030 | V-012-.014 | V-.011-.012C | VY-.014-.016 | SS-Semi-Steel | COM-Commercial

H—.015-.025 HH—.013-.015C E—.018-.020 D—.018-.024 K—.020-.025 M—5°B for CC460, 3°B for CF450 P—.018-.023 R—.028-.032 T—.025-.028



| Intake





TRUCK MAKE	Engine Make and	Number of Cylinders, Bore	Material	ng Rods From	Normal Oil Pressure Lb. at	Or B-B	ake ilve iens efore After	Appet o for ning	CLEA	ATING PPET RANCE ess noted)		SPARK	PLUG		Point Gap	Occurs oTC	Occurs Fly- I Teeth oTC ore A-After	Speed
	Model	and Stroke	Piston M	Connecting Removed Fr	M.P.H. or R.P.M.	oTc	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	Breaker Point	Spark Oct B-Before	Spark Oct Wheel Te B-Before	Comp. Pro
WALTER—Continued FN (1940-42) FM (1940-42) FKM, FCK (1940-42) FB, FBR (1940-42) FXB, FXR (1942).	Wau 6MKR Wau 6SRLR Wau 6SRKR Wau 6RBR Her HXE	6-4½x4¾ 6-4½x5½ 6-4½x5½ 6-5x5¾ 6-5¾x6	AI AI AI AI	Top Top Top Top	40-1500 40-1500 40-1500 40-1500 35-1600	8°A 8°A 10°A	3A 3A 3A 4A Var	.004 .004 .004 .008 .010	.008-10 .008-10 .008-10 .008-8 .010	.014-16 .014-16 .016-18 .010-12 .016	Ch	o	18mm 7/8 3/8 1/8 1/8	.025 .025 .025 .025 .025	.018 .018 .018 .018		TC	80 90 90 90
WHITE 54, 548, 585, 59, 59A, 84, 640, 641, 642, 643. 60, 601C, 601, 602, 61 55, 51AS, 58S, 59A, 620, 621, 63, 630, 631, 65K. 61, 611, 612, 612K, 618, 619K. 48, 640, 640K, 641, 641K, 642, 643, 691 65, 620, 620K, 621, 621K, 630, 630K, 631, 631K. 701, 702, 707 712, 718. 730, 731 704, 704, 704K, 709, 703, 805, 809 686. 730, 731 704K2, 712SL, 706, 710, 810 (1936-37) 729, 7207 (1936) 722 (1936) 700, 700K (1937) 712NS, 718NS, 706M, 812, 818 (1937) 620, 720 750, 7507, 850 784, 786, 786, 788 722, 622 706, 710, 718, 810, 818 705, 706M, 706, 710, 719, 810, 818 (1940) White Horse (1940) WA14, WA114 WA18, WA118 WA20, W120, WA2064, WA18 WA22, WA25, WA34, WA122, WA126, WA134, WA2284 White Horse (1941) 762	Own 140A Own 35A	6-45 (x 5) 6-35 (x 4) 6-45 (x 5) 6-45 (x 5) 6-45 (x 5) 6-47 (x 5) 6-37 (x 4) 12-35 (x 3) 6-37 (x 4) 12-35 (x 3) 6-37 (x 4) 12-35 (x 4) 12-	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Top	40-2400 40-2400 40-2400 40-2500 40-2500 40-2600 40-2600 40-2400 40-2400 40-2400 40-2400 40-2400 40-2400 40-2400 40-35 Max. 35 Max.	TC TC TC 101°E TC 10°B 10°B 10°B 10°B TC TC 15°B 10°B TC 2°B 15°B 15°B 15°B 15°B 15°B 15°B	TC 11/4A TC 4B 31/4B 31/4B 31/4B TC TC 31/4B 31/4B TC	.010 .010 0 0	.020 .015 .020 .015 .020 .010 .010 .012 .010 .012 .020 .020	.032 .015 .025 .016 .032 .020 .018 .020 .016 .016 .025 .025 .025 .020 .025 .020 .025 .020 .025 .020 .020	AGC	EEEEDEWKKKKKEEKKKEB 1100 144 1100 1158 1001 1010 1010 1010 1010 1010	14mm 14mm 14mm	T P P P P P P P P P P P P P P P P P P P	.021 .015 .018 .018 .020 .020 .020 .018 .018	TC 11/2B 11/2B 12°B TC	3A TC TC TC TC TC 11/4B 4B 4B TC TC TC TC TC	117 112 112
WILLYS 38, 48, 440P. 440. 441, 441P. 442, 442P.	(France)	4-31/8x48/ 4-31/8x48/ 4-31/8x48/ 4-31/8x43/	AI AI	Top Top Top	30-30 75-30 75-30 75-30	TC 9°B 9°B 9°B	TC 2½B 2½B 2½B	.010 .020 .020 .020	.004 .014 .014 .014	.006 .014 .014 .014	Ch Ch Ch	C7 J8 J9 J9	18mm 18mm 18mm 18mm	.030	.020	5°A TC TC	TC TC TC	87 107 107 107
ENGINES																		
CONTINENTAL	HP217 HP260 HP298 HP351 K369 K393 K428 L525	4-3+3x4+4-3+3x4+6-3+3x4+6-3+3x4+6-3+3x4+6-4+3x48-6-4+3x48-6-4+3x48-6-4+3x48-6-3-3x48-6-3x48-6-3x68-6-3x68-6	CI CI CI CI CI AI CI AI CI AI	Top Top Top Top Top Top Top Top Top Top	40-1400 40-1400 40-1400 40-1400 40-1400 40-1400 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600 40-1600	TC TC TC TC TC TC TC TC TC TC TC 20°B 12°B 12°B 12°B	TC	.015 .009 .009 .009 .009 .009	.006 .006 .006 .006 .006 .006 .006 .006	.009 .009 .009 .009 .009 .009 .009 .009	AC A	Die Die Die Die Die Die	18mm 18mm 18mm 18mm 18mm 18mm 18mm 18mm	.025 .025 .025 .025 .025 .025 .025 .025	.018 .018 .018 .018 .018 .018 .018	3		94 87 87 103 103 87 89 102 87 93
WINENIAL	F6199 F6209 F6218 A6244 20C E600 E601 E602 E603	4-3%x4 6-3x4 6-3;4x4 6-3;4x43 6-3;4x43 6-3;5x43 6-3;5x43 6-4;6x43 6-4;6x43 6-4;6x43 6-4;6x43 6-4;6x43	TPP	Top Top Top Top Top Top Top Top Top Top	35-2500 30-2000 30-2000 30-2000 50-2500 35 Max 40-2600 40-2600 40-2600 30-2300 30-2300			.012 .014 .014 .014 .014 .012 .018 .018 .018 .018	.0100 .0140 .0140 .0140 .0140 .0180 .0180 .0180 .0180 .0130 .0130	.0140 .0140 .0140 .0140 .0140 .0140 .0140 .0120 .0220 .0220 .0220 .0220 .0180			18mm 18mm 18mm 18mm 18mm 18mm 18mm 18mm					97 114 83 102 97 102 99 80 78

(CONTINUED) ENGINE SERVICE SPECIFICATIONS

1943 PLEET OMBATORS	TRUCK MAKE	Engine Make and	Number of Cylinders, Bore	Matorial	ng Rods From	Normal Oil Pressure Lb. at	Op B-B	ake live lens efore After	uppet s for ning	CLEAR	ATING PPET RANCE less noted)		SPARK	PLUG		Point Gap	Occurs "TC	Occurs Fly- Teeth TC re A-After	Speed at
REFERENCE ANNUAL		Model	Stroke	Piston M	Connectin Removed	M.P.H. or R.P.M.	°TC	Flywheel Teeth TC	Intake Tappet Clearance for Valve Timing	Intake	Exhaust	Make	Туре	Size	Gap	Breaker	Spark Oc B-Before	Spark Oc Wheel Te B-Before	Comp. Pr
CONTINENTAL—Continu		Y4089 Y4091 F4124	4-21/4x31/4 4-21/4x31/4 4-3x41/4 4-3-14x41/4	CI CI Tp	Top Top Top	35-40 35-40 35-40		****	.012 .012 .014	.012C .012C .014C	.012C .012C .014C			18mm 18mm 18mm					105 105 106
***************************************		F4140 F4162 M6271 M6290 M6330 M6253 B6371 B6405	6-3%x4%	Tp Tp Tp Tp	Top Top Top Top Top Top Top	35-40 35-40 55-1200 55-1200 55-1200 55-1200 13-300 13-300			.014 .014 .0175 .0175 .0175 .0175 .022	.014C .014C .017C .017C .017C .017C .017C	.014C .014C .022C .022C .022C .022C .025C			18mm 18mm 18mm 18mm 18mm 18mm 18mm				******* ****** ******	105 100 99 101 120 123
HERCULES	***************************************	ZXA		CI	Тор	15-1000	E°A	Var	.006	.008	.008			14mm	.025	.020	TC	тс	124
		ZXB IX IX IXF IXA IXA IXA IXA OOA OOB OOC OXA QXB QXC QXD JXA JXF JXG JXC JXC JXC JXC JXC JXC WXCC WX	4-2/4x3 4-2/4x3 4-2/4x4 4-3/4x4 4-3/4x4 4-3/4x4 4-3/4x4 6-3/4x4 6-3/4x5 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6 6-5/4x6	CI CI Var Var Var Var Var Var Var Al Var Al Var Al Al Var Al	Top	15-1000 18-1000 18-1000 18-1000 18-1000 18-1000 18-1000 18-1000 18-1000 28-1800 28-1800 28-1800 28-1800 28-1800 28-1800 28-1800 28-1800 28-1800 28-1800 38-1800	5°AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Var	.008		.008 .008 .008 .008 .008 .008 .012 .012 .012 .012 .013 .008 .008 .008 .008 .008 .008 .010 .010		Di Di Di Di Di Di Di Di	14mm 18mm 18mm 18mm 18mm 18mm 18mm 18mm	.028 .025 .025 .025 .025 .025 .025 .026 .026 .026 .028 .028 .028 .028 .028 .028 .028 .028	.020 .020 .020 .020 .020 .020 .020 .020	TE T	TC T	Opt
WAUKESHA		6BK	6-33/4×41/	AI	Тор	40-1500		11/2A	.010		.014-160			. 18mn		5 .01			. 11
		6ML 6MK 6MZ 6SRL 6SRK 6AB 6RB 6RB 6-110 6-125 6SRS 6BA 6SKA 6BKH 6ZKA 6BKH 6BKH 6WAL 6WAL 6WAL 6WAL 6WAL 6WAL 6WAL 13045, 1301 13045, 1301 14045, 1401	SL 4-4x5 SS 6-414x51 K 6-414x51 SS 8-444x6	COCIONEL AND	Top Top Top Top Top Top Top Top Top Top	40-150/ 40-		3A 4A 11/2A 5B 15B 15B 10 11/2A 10 11/2A	.010 .009 .008 .004 .010 .010 .008 .008 .008 .001 .012 .012 .012 .004 .004 .004 .004 .008	.008-101 .008-101 .008-101 .008-101 .008-101 .008-101 .008-101 .008-101 .010-122 .010-122 .008-101 .010-122 .008-101 .010-122 .008-101 .015-177 .015-177 .010-122 .018-102 .018-202 .01	C .012-14(C .012-14(C .014-18(C .014-18(C .014-18(C .014-18(C .016-18(C .016-18(C .016-18(C .014-18(C .014		## ## ## ## ## ## ## ## ## ## ## ## ##	18mn	.022 .022	5 .01 5 .01	Var Var Var Var Var Var Var Var		

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Bearing Tolerances and Oil Clearances

Strict adherence to recommended bearing tolerances and oil clearances will do much to prolong the life of critical materials used in connecting rod, main and camshaft bearings. Federal-Mogul Corp. gives the following service recommendations for prolonged bearing

TOLERANCES

120 123 124

CRANKSHAFT—A shaft worn to the extent that the bearing surfaces are ridged and scored, is unfit for use and must be reground.

Journals: Should not be more than .003 in. out of

Crankpins: Should not be more than .002 in. outof-round. If main journals or crankpins exceed these tolerances, the shaft is unfit for further use and must be reground.

CRANKCASE—Bearing Saddle Bores: Must be round within .002 in. and in true alignment lengthwise for use with precision insert main bearings.

MAIN BEARINGS—Spread (width across the open ends) should exceed the crankcase bore diameter by .005 in. to .020 in., depending on the thickness and structural stiffness of the bearing.

CONNECTING RODS—Crankpin bearing bore and the piston pin bushing bore must be parallel with each other within .001 in. in 6 in., and the twist between

these bores must not exceed .001 in. in 6 in. Rod Bore: Must be round within .002 in.

Rod Bearings: Spread (width across the open ends) nould exceed the rod bore diameter by .005 in. to .020 in., depending on the thickness and structural stiffness of the bearings. The Ford V8 rod bearings are exceptions to this rule.

Rod Bearings: It is preferable that bearings be truly round and smaller at every point in the cir-cumference than the rod bore. The correct distance across the open ends of the various Ford bearings are

s follows: 1937-39 Model 60—1.797 in. desired to 1.802 in. 1940 Model 60—1.898 in. desired to 1.908 in. 1936-38 Model 85—2.217 in. desired to 2.227 in. 1939-42 Model 91—2.217 in. desired to 2.227 in. 1939-42 Mercury—2.357 in. desired to 2.367 in.

CAMSHAFT BEARINGS-After an engine has used up two sets of main and connecting rod bearings, the camshaft bearings are a potential source of trouble due to wear and should be replaced.

OIL CLEARANCES

CONNECTING RODS-End clearances of bearings are recommended as follows:

Diameter of

Journal	Clearance
2 to 23/4 in	 .004/.006 in.
2 13/16 to 31/2 in.	 .006/.008 in.
Over 31/2 in	 .008/.010 in.

CRANKSHAFT-End clearances at the thrust bearings should be the same as given for connecting rod end clearances.

MAIN and CONNECTING ROD BEARINGS: Oil clearances for pressure (force feed) lubrication are recommended as follows:

CLEARANCES

Dia. of Crankshaft Journal or Crankpin	Tin Base Babbitt or Bermax High Lead Babbitt	Genuine Cadmium Silver Copper	Federatoy B-30 Copper Lead
2 to 23/4	.0015	.0020	.0025
2 13/16 to 31/2		.0030	.0035
3 9/16 to 4		.0035	.0040

Note A: A tolerance of Plus .001 in. is allowable on the clearances specified.

Note B: Oil clearance as shown in this chart is the difference in the diameter of the crankshaft journal or crankpin and the bore diameter of the bearing.

RECOMMENDED WEAR LIMITS ENGINE BEARINGS BRAKE AXLE

For Engine Bearings, Timken Axles and Brakes, and for Parts of Various Types of Service Brakes: Also Oil Clearances

Timken Axles & Brakes

With replacement parts on the critical list, a queswith replacement parts on the critical list, a ques-tion confronting every maintenance department is: "When is a part worn beyond further usefulness?" Regarding front and rear axle parts and brake parts, Timken-Detroit Axle Co. gives the following recom-mendations on maximum wear limits. It advises close study of the limits given and adoption if they check

FRONT AND REAR AXLES

Bevel drive Rear wheel							
Wormshaft	thrust I	bearings	 	 		 .006	loose
Front when	el bearin	ıgs	 	 		 .008	loose
Frant avia	cteoring	hall					

Brake camshaft bushings (babbitt or bronze) .025 loose Brake drums (Permissible amount of material to be

removed by grinding or wear): Light types with thin linings.....1/16 in. on a side Heavy types with thick linings....3/32 in. on a side

Service Brakes

The following working limits for better brake operation and care of Lockheed, Huck, Bendix and two-shoe cam-operated brakes, are the recommendations of J. Donald Roach, Sales Engineer, U. S. Asbestos Div., Raybestos-Manhattan, Inc.

BRAKE DRUMS—Do not cut drum wall more than 1/32 in. on cars and light trucks; more than 1/16 in. on heavy trucks and busses. Drums should be discarded if deflection in diameter is more than .060 in. under full brake application.

Diameter should be concentric with hub within

Surface: Refinish if worn or scored more than .010 in. or if heat checked.

Taper: Refinish if tapered or belt-mouth more than

BRAKE SHOES-Cam Ends: Bendix shoes should be repaired (or discarded if this is not possible), if the cam end is worn or bent and if the anchor pin eye is worn at the small radius.

Rollers: Discard rollers that are worn, particularly if a flat spot is present on outside. Roller plates should be discarded if grooved by the cam more than .015 in.

BUSHINGS—Anchor bushings should be replaced if worn more than .008 in. Anchors should be fitted and bushings accurately reamed.

ANCHORS-Pins: Anchor pin on the Huck brake is non-adjustable type, renew anchor if worn more than .008 in.

On the two-shoe cam operated brake and the Lockheed brake, renew anchor pins or rebush shoes if more than .008 in.

LINKS-Articulating links must be rigid and hold the shoes without side play. Examine springs and buttons and renew springs if weak. Applies to all Huck brakes.

CAM—On the two-shoe cam operated brake, cam-shaft should be renewed and bracket rebushed if worn more than .025 in.

SHOE TIPS & ROLLERS—On the two-shoe cam operated brake, shoe tips or rollers should be replaced

SPRINGS-All springs should be renewed if weak.

HYDRAULIC SYSTEMS-Wheel Cylinders: Dismantle A TORAULIC STRIEMS—where Cylinders: Dismantle and examine at each reline or if leaks are present. Renew pistons if scored, sticking, or worn more than .005 in. Replace cylinders if scored or if "no-go gage" will enter. Renew all rubber cups.

MASTER CYLINDERS-Check Valve: Pre-loading of master tributed and the state of the seats are worn or misshapen or if small spring is weak or rusty.

Primary & Secondary Cups: Renew cups if distorted or if edges are rounded.

Main Spring: Renew spring if weak.

Main Spring: Renew spring if weak.
Piston: Renew if scored or worn more than .005 in.
Make certain by-rass holes are open. Cylinder walls should be honed if scored. Use a "no-go gage" for measurement of cylinder diameter. If, after honing enough to remove all scores, the "no-go gage" will enter, master cylinder should be replaced.

KEEP 'EM ROLLING



1943 FLEET OPERATORS' REFERENCE ANNUAL

GASOLINE ENGINE

Fleet maintenance men who are increasing the amount of engine rebuilding and parts salvage in their shops will find much useful data in these tables. After welding on a new face on a valve, for example, the finishing data on the correct diameter of the valve head, stem and the face angle will be found on these pages.

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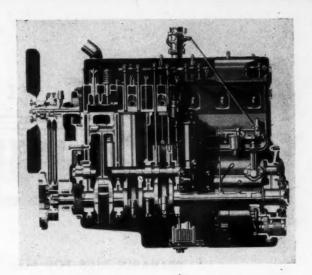
	43	MAX. E				TORQUE	E			VA	LVES				lype		Piston			CAR		8
ENGINE MAKE AND	Cylinda roke (it		2	Displacement 1.)	n Ratio	Torque (Lb. Ft.)		-	Max. Diam.		St. Diam.	em (in.)	Se	ats	Drive-Type	erial	ped	Diameter th (In.)	- ti			Weight
MODEL	Number of Cylinders, Bere and Stroke (In.)	With Bare Engine	With Standard Accessories	Piston Disp (Cu. In.)	Compression	Maximum 1 at R.P.M. (Arrangement	Intake	Exhaust	Intake	Exhaust	Angle (Deg.)	Inserts Used?	Front End [Piston Material	No. of Rings	Crankpin, Di and Length (Oil Pressure	Make	Size	Engine Wei
AUTOCAR 377447	8-4x8 8-4\4x8\4 8-4\4x5\4	119-2800 133-2500 145-2500	112-2800 122-2500 134-2500	377.0 447.0 501.0	5.75 5.75 5.75	280-1400 (351-1100 (395-1950 ((BE) (BE)		1,90 2.06 2.06	1.78 1.93 1.93	.437 .437 .437	.437 .437 .437	45 45 45	шшш	HG HG	AI AI	444	2.37x1.44 2.50x1.58 2.50x1.58	abcde abcde abcde	Zen Str Str	11/4	1168 1320 1330
BUDA K-428 L-525 LO-525	8-434x434 8-434x534 8-434x534	107-2400 110-2400 138-2400	94-2400	428.0 525.0 525.0	4.75	240-1100 (287-800 (330-1100 ((EA) (EA)	111	1.90 1.90 1.98	1.78 1.78 1.88	.372 .372 .372	.372 .372 .372	45 45 30	NEE	HG HG	AI CI AI	4 4 5	2.37x1.75 2.37x1.75 2.37x1.75	abode abode abodeg	Zen Zen Zen	134 134 134	908 950 1198
HEVROLET 1942 1942	8-314x344	90-3300 93-3100	83-3200 83.5-3000	216.5 235.5	6.50 6.62	168-1100 182-1000	(EA)	1	1.84	1.48	.341	.340	30 30	N N	HG HG	CI	3 3	2.31x1.50 2.31x1.50	abeg abeg	Car Car	114	
CONTINENTAL F-6209 A-6244 M-6271 M-6290 M-6330 B-6371 B-6405 21R 22R	8-3-1-x43-6 6-3-1-x43-6 6-3-1-x43-6 8-3-1-x43-6 8-41-x43-6 8-41-x43-6 6-41-4-3-6 6-41-4-3-6	71-3200 05-3000 92-3000 99-3000 107-2800 106-2500 115-2500 133-2400 141-2400	*********	289.9 329.8 370.9 405.3 428.4	5.75 6.02 5.75 5.70 5.50 5.74 4.63 4.50	155-1200 182-1200 207-1200 225-1200 258-1000 280-1000 314-1000 323-1000 375-1000	(BE) (BE) (BE)		1.51 1.57 1.76 1.76 1.78 1.89 1.89 2.06 2.06	1.32 1.32 1.51 1.51 1.51 1.64 1.64 1.87	.341 .373 .404 .404 .404 .435 .435 .435	.339 .372 .402 .402 .402 .432 .432 .433	(h) (k) (h) (h) (k) 30 30		Ch HG HG HG HG Ch Ch	CT CT CT CT AI AI	454445544	1.93x1.31 2.12x1.37 2.25x1.58 2.25x1.58 2.25x1.58 2.50x1.69 2.50x1.69 2.50x1.81 2.75x1.81	abcet abcet abcet abcet abcet abcet abcefg abcefg		11/2/1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/	806 546 756 776 856 870 1311 1436
OODGE T-112, T-114 T-116 T-118, T-126 T-120, T-130 T-124	8-31/x41/6	95-3800 105-3600 115-3900 120-3800 110-3200	80-3400 85-3400 95-3600 100-3600	217.7 230.2 236.6 250.6	6.80 6.80 6.80	172-1200 (134-1300 (190-1500 (200-1500 ((BE)		1.53 1.53 1.68 1.68 1.93	1.40 1.40 1.53 1.53 1.75	.340 .340 .340 .340 .371	.340 .340 .340 .340	45 45 45 45 45	шшшшш	Ch Ch Ch		44444	2.08x1.00 2.06x1.00 2.12x1.09 2.12x1.09 2.31x1.43	abce abce abce abce abce	Car Str Car Car Str	XXXXXX	500 534 560 1050
FORD 40			40-3200† 90-3400† 90-3800† 100-3800†	119.5 225.8 221.0 239.0	6.00 6.70 5.90 6.40	84-1600 180-1400 156-2000 176-2000	(BE) (BE) (BE) (BE)		1.51 1.65 1.51 1.51	1.28 1.51 1.51 1.51	.311 .311 .311	.310 .310 .310 .310	45 45 45 45	Bo Bo Bo	HG HG HG	CAS CAS CAS	3	2.10x1.12 2.23x1.40 2.00x1.75 2.14x1.75	abe abe abe	Own Own Own	.78 1.19 .94	35 53 54 54 55
G, M. C. 229. 246. 270. 278. 308. 301. 426. 451. 477. 829. 707.			85-3000 89-3000 95-3000 86-2800 106-2500 127-2400 130-2400 135-2400	228.0 248.5 270.0 278.6 308.2 360.8 425.6 450.9 477.1 529.2	6.78 6.75 6.75 6.00 6.00 6.00 6.00 6.00	178-1000 198-1000 216-1000 213-1000 239-900 265-900 350-1000 365-1000 387-1000	(EA) (EA) (EA) (EA) (EA) (EA) (EA) (EA)		1.84 1.84 1.84 1.81 1.81 1.94 1.94 1.94 2.12 2.44	1.47 1.47 1.47 1.56 1.46 1.72 1.72 1.72 1.72	.375 .375 .375	.343 .343 .375 .375 .375 .375 .375 .375 .437	30 30 30 45 45 (h) (h) (h) 30 30	ппппппппппппппппппппппппппппппппппппппп	HG HG HG HG HG HG	AI AI AI AI AI AI AI	4444444	2.31x1.23 2.31x1.23 2.31x1.23 2.37x1.34 2.37x1.34 2.62x1.47 2.62x1.47 2.62x1.47 2.62x1.72 2.62x1.72 2.75x2.06	abcdeg abcdeg abcdeg abcdeg abcdeg abcdeg abcdeg abcdeg abcdeg abcdeg	Zen Zen Zen Zen Zen Zen Zen Zen Zen	13/6 13/6 13/6 13/6 13/6 13/6 13/6 13/6	
HERCULES QXA-3, QXA-5. QXB-3, QXB-5. QXC-3, QXC-6. QXD-3, QXD-5. JXA- JXF JXE- JXG JXG JXG JXG WXC WXC-2 WXC-2 WXLC-3 VXC-2 VXC-2 VXC-2		59-3000 67-3500 73-3500 73-3500 63-2800 71-3000 84-3000 81-3000 110-2800 110-2800 111-2800 111-2800 116-2400	50-3000 57-3500 62-3500 62-3000 53-2800 60-3000 71-3000 74-3000 93-3000 93-3000 99-2800 99-2800 99-2800	190.0 190.0 1205.0 1221.0 1230.0 1228.0 1246.0 1263.0 1263.0 1263.0 139.0 1	5.50 5.85 5.85 6.50 5.16 6.11 5.40 5.90 5.90 5.90	130-1000 150-1000 150-1000 171-1100 141-1000 151-1200 169-1000 195-1000 225-1100 225-1100 228-1100 228-1100 238-1100				1.37 1.37 1.37 1.62 1.62 1.62 1.62 1.62 1.75 1.75	.310 .310 .310 .310 .373 .373 .373 .373 .373 .373 .373 .37	.310 .310 .310 .373 .373 .373 .373 .373 .373 .373 .37	30 30 30 45 45 45 45 45 45 45 45 45 45 45	N	HGG HGG HGG HGG HGG HGG HGG HGG HGG HGG	CI CI AI AI AI AI AI CI CI CI CI CI CI	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2.00x1.25 2.00x1.25 2.00x1.25 2.00x1.25 2.00x1.50 2.00x1.50 2.00x1.50 2.00x1.50 2.00x1.50 2.25x1.50 2.25x1.50 2.25x1.50 2.25x1.50 2.25x1.50 2.25x1.50 2.25x1.50 2.25x1.50	abe		11/4 11/4 11/4 11/4 11/4 11/4 11/4 11/4	

ABBREVIATIONS
"-Weight with ignition and earburetor
†-Rated with generator and water pump,
but no fan or muffler

Bo—On Intake and Exhaust seats c—Camshaft Bearings Car—Carter Carburetor CAS—Cast Alloy Steel

SPECIFICATIONS

Maintenance men will find much other important and practical data compiled for the better understanding and performance ability of the power plants in their various vehicles. Maximum brake horsepower ratings, for example, are given for the various engines with standard accessories as well as bare.



	43	MAX. B		=		TORQUE			V	ALVES				lype		Piston			CAR		8
ENGINE MAKE AND	Cylinde treke (i		2	lacement	n Ratio	Torque (Lh. Fr.)	#	Max. Diam	Head (in.)	St. Diam.	em (in.)	Se	ats	Drive—Type	erial	Rings per Pi	Jamete (In.)	- ot e			Weight
MODEL.	Number of Cyfinders, Bore and Streke (In.)	With Bare Engine	With Standard Accessories	Piston Displ (Cu. In.)	Compression	Maximum at R.P.M.	Arrangement	Intake	Exhaust	Intake	Exhaust	Angle (Deg.)	Inserts Used?	Front End I	Piston Material	No. of Ring	Grankpin, Diameter and Length (In.)	Oil Pressure	Make	Size	without Car
HERCULES—Cent. YXC-3 RXB RXC RXC RXLC RXLD HXB HXC HXC	8-4%x4% 6-4%x5% 8-4%x5% 0-4%x5% 8-5x6 0-5%x6 6-5%x6 8-5%x8	129-2400 121-2400 131-2400 144-2400 152-2400 160-2100 177-2100 184-1800 200-1800	109-2400 103-2400 111-2400 122-2400 129-2400 136-2100 150-2100 156-1800 170-1800	500.9 529.2 529.2 558.0 707.0 779.0 855.0	5.41 6.20 6.20 5.75 5.69 5.73	374-1100 (BE) 362-1100 (BE) 395-1000 (BE) 413-1000 (BE) 438-1000 (BE) 502-900 (BE) 500-1000 (BE) 630-900 (BE) 695-900 (BE)		2.00 2.00 2.00 2.00 2.00 2.43 2.43 2.43 2.43	2.00 2.00 2.00 2.00 2.00 2.31 2.31 2.31 2.31	.373 .373 .373 .373 .498 .498 .498	.373 .373 .373 .373 .373 .498 .498 .498	45 45 45 45 (h) 30 30 30	NNNNEEEE	HG HG HG HG HG HG	CI AI AI AI AI AI	4 5 5 5 5 4 4 4 4	2.50x1.75 2.62x2.00 2.62x2.00 3.00x2.00 3.00x2.00 3.00x2.25 3.00x2.25 3.00x2.25 3.00x2.25	abe abe abe abe abca abca abca	Op Op Op Op Op Op Op	134 134 134 134 134 2 2 2 2	975 1000 1010 1190 1190 1810 1830 1830
INTERNATIONAL GRD-175 GRD-214 GRD-233 FAC-241 FAC-259 FBC-318 FBC-361 FBC-361 FBC-361 FBC-460 FBC-480		84-3400 82-3400 93-3400 95-3200 101-3200 111-2700 114-2600 120-2400 140-2100	99-2400 104-2300	232.65 241.54 259.76 318.41 360.82 400.92	6.30 6.20 6.20 5.40 5.20 5.20	192-1200 (BE) 211-1600 (BE) 241-800 (BE) 268-1500 (BE) 308-800 (BE) 331-800 (BE)	1111	1++ 1++ 1++ 1++ 21/4 21/4 21/4 21/4 21/4	114 114 114 114 115 115 115 115 115 115	.372 .372 .372 .342 .342 .372 .372 .372 .372	.371 .371 .371 .342 .342 .372 .372 .372 .372	45 45 45 45 45 15 15 15 15		Ch Ch HG HG HG HG	CI CI CI AI AI AI AI AI	4 4 4 4 4 4 4 4 4	2.00x1 4 2.00x1 4 2.00x1 4 2.0x1 4 2.4x1 4 2.4x1 4 2.4x1 6 2.4x1 6	abede abede abede abede abede abede abede abede abede	Zen Zen Zen Zen Zen Zen Zen Zen Zen Zen	וא און און און און און און און און און א	53 53 56 77 76 95 93 98 97
MACK EN-11 EN-12 EN-12 EN-253 EN-271 EN-290 EN-310 EN-330 EN-330 EN-431 EN-471 EN-471 EN-510 EN-611 EN-707	6-616x4936 6-316x4936 6-316x4936 6-356x4936 6-356x5 6-476x536 6-476x536 6-476x536 6-476x536 6-476x534 6-5x6	67-3000 72-3000 83-3000 90-3000 97-3000 100-2850 100-2850 115-2850 135-2550 147-2550 163-2250 178-2150	80-2750 82-2700 86-2800 100-2700 106-2500 115-2400 129-2400 145-2100	226.0 253.0 271.0 290.0 309.6 330.0 353.8 431.0 471.0 611.0	5.94 5.73 6.00 6.10 5.60 6.00 5.50 5.72 5.63 5.63	180-1000 193-1200 214-1100 213-1100 244-1000 254-1100 327-1200 351-1200 382-1200 462-1200	1111111111111			.344 .344 .406 .406 .406 .375 .406 .375 .437 .437 .437	.344 .344 .406 .406 .406 .375 .407 .437 .437 .437	(h) (h) (k) (k) 30 (h) 30 30 30 30		HG HG HG HG HG HG HG	CI AI AI AI AI AI AI	4555555555555	1.94x1.31 2.06x1.31 2.25x1.37 2.25x1.37 2.37x1.62 2.25x1.37 2.37x1.62 2.75x1.72 2.75x1.72 2.75x1.72 3.00x2.09 3.00x2.09	abet abet abet abet abeef abet abeef abefg abefg abefg abefg abefg	Zen Zen Zen Zen Zen Zen Zen Zen Zen Zen	11/4 11/4 11/2 11/2 11/2 11/2 11/2 11/2	50 51 74 73 75 88 77 90 149 150 152 170
REO GC-228. GC-245. GC-288. GC-310.		83-3200 89-3100 94-3000 101-3000			6.20	191-1000 (BE) 221-1200 (BE)	L	1.78 1.78 1.78 1.78	1.62 1.62 1.62 1.62	.373	.373 .373 .373 .373	45 45 45 45	EEEE	Ch Ch Ch	AI AI AI	4 4 4	2.19x1.50 2.19x1.50 2.19x1.50 2.19x1.50	abcde abcde abcde abcde	Zen Zen Zen Zen	11/4	78 76 78 78
WAUKESHA 6BL 6BM 6BK 6BZ 6MKR 6MZR 6SRLR 140-GK 6SRKR 145-GS 6RBR 145-GK 6GAK	6-33-5x43-4 6-35-5x43-4 6-35-4x43-4 6-41-4x43-4 6-43-4x85-5 6-43-4x85-5 6-43-4x85-6 6-53-4x86 6-53-4x86 6-53-5x86 6-53-5x85-6	72-2800 77-2800 82-2800 98-2500 108-2500 112-2250 136-2250 125-2250 152-2000 186-2000 188-2000	54-2000 59-2000 65-2000 58-1800 66-1600 105-2250 120-2250 140-2250 144-2000 177-2000	263.0 282.0 320.0 381.0 404.0 462.0 525.0 517.0 638.0 677.0	5.70 5.75 5.75 5.34 5.38 5.50 5.60 5.60 5.60	189-1100 (BE) 210-1000 (BE) 270-800 (BE) 286-800 (BE) 330-600 (BE) 407-1000 (BE) 481-1000 (BE) 492-800 (BE) 590-1200 (BE)	22222222	1.68 1.68 1.68 1.93 1.93 2.16 2.12 2.16 2.37 2.40 2.37 2.21	1.43 1.43 1.43 1.43 1.65 1.65 1.65 1.84 2.40 1.84	.375 .375 .375 .375 .375 .375 .434 .375	.375 .375 .375 .375 .375 .375 .375 .434 .375 .500 .437	45 45 45 45 45 30 (h) 30 (h) 45 (h)		HG HG HG HG HG HG HG HG	AI AI AI AI AI AI AI AI AI AI	444444444444	2.00x1.50 2.00x1.50 2.00x1.50 2.00x1.50 2.25x1.50 2.25x1.50 2.75x1.75 2.62x2.00 2.75x1.75 3.00x2.25 3.00x2.25 3.00x2.25	abede abede abede abede abede abede abedeg abede abedeg abedeg abedeg	Op Op Op Op Op Op Op Op Op Op	11/4/11/11	67 68 69 70 89 92 118 139 122 190 157 193 225
WHITE (H) 38A		40-2800 90-2800 100-2600 110-2800 125-2800		250.0 270.0	6.75 6.50 6.40	185-1200 (BE) 200-1300(BE) 285-1200 (BE)	L		1.22 1.62 1.62 1.62 1.62	.375	.372 .375 .375 .437 .437	30 45 45 45 45	-	HG HG HG	CI AI AI AI	4 5 5 5 5	2.25x1.43 2.18x1.34 2.18x1.34 2.18x1.34 2.18x1.34	abc abcde abcde abcde abcde	Zen Str Str Str Str	11/4	4: 9: 9: 9: 10:
WILLYS 442	4-31/x43/s	63-3900		134.2	6.48	108-1800 (BE)	L	1.53	1.46	.373	.373	45	N	Ch	CI	3	1.94x1.30	abce	Car	134	30

e—Timing Gears or Chain
E—On Exhaust valve seats
(EA)—Engine with Standard Accessories
f—Accessories drive

g—Rocker Arms and Shafts (h)—Intake 30°, Exhaust 45° (H)—Horizontal Engine HG—Helical Gear

I—In Head (Valves)
(k)—Intake 30°, Exhaust 44
L—Valves at Side (L-Head)
N—No or none

OH—Overhead Op—Optional Str—Stromberg Carburetor t—Tappets and Valve Mechanism Zen—Zenith Carburetor





PUBLICATIONS



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L87. Jack Maintenance Manual

One of the world's largest manufacturers of automotive jacks has prepared a manual on the care and maintenance of that essential piece of shop equipment. The treatment is non-technical, so that even the least skilled person in the shop can understand, and the text is profusely illustrated. While the manual primarily covers hydraulic jacks, many of the suggestions are equally applicable to other types.

The manual begins with drawings and explanations on service and tool box jacks, explaining the vital operating parts. The next few pages deal with right and wrong handling of jacks, cautioning throughout against abuse. The next section is devoted to maintenance suggestions, and the remaining pages are devoted to 12 service hints dealing with the five principal reasons a jack will not give satisfactory service. Write L87 on the postcard for your free copy.

L88. Wartime Service Handbook

Fleet operators having Delco-Remy electrical parts in their trucks will be interested to know that an excellent handbook has been published dealing with the maintenance of the various units in the electrical system.

The handbook has been prepared to enable truck owners to service and salvage those parts with the view of conserving the vital materials from which they are made.

An idea of the thoroughness with which the material has been prepared can be gained from the discussion on armature repair, which is treated in simple causeand-effect procedure. Four common causes of armature failure are given. Each point is thoroughly explained and numerous checking and correction suggestions are given.

While the treatment is simple enough for mechanics' helpers to understand, it contains many valuable suggestions that should save time for expert ignition and electrical maintenance men. Write L88 on the postcard for your free copy.

L89. Clutch Service Manual

The technical service department of one of the large clutch manufacturers has prepared an especially good manual on the repair, adjustment and installation of clutches. It is so thorough that every fleet shop should have at least one for the maintenance manager.

The treatment starts with a general discussion of operation and performance that will give the least skilled men a thorough conception of the function of this major unit. Details of the procedure start with instructions when to make adjustments, eight illustrated steps on how to adjust the clutch, and then goes on to clutch rebuilding, assembly and installation. All the steps are clearly illustrated.

Single and two-plate clutches are included in the manual and their various parts are well illustrated. Expert clutch service men will find many time-saving hints and quick reference charts that should prove very useful. Write L89 on the postcard for your free copy.

L90. Brake Service Schedule

One of the leading brake lining manufacturers has prepared an excellent wall chart of the National Safety Council Brake Service Schedule. The data, developed by the country's leading brake technicians under N.S.C. engineers' supervision will provide fleet shop men with the standards that insure the quickest, safest and most complete check on brake inspection, adjustment and relining for passenger cars as well as trucks and buses equipped with air, vacuum or electric controls.

The wall chart format of presenting this information will provide a convenient and

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not easily misplaced reference for daily use at the point of service. Write L90 on the postcard for your free copy.

L91. Sample Hose Clamp Free

COMMERCIAL CAR JOURNAL readers are offered a free sample of the Allsize Universal hose clamp. The manufacturer states that this clamp will replace more than 100 sizes of preformed hose clamps, thus making it unnecessary to carry a large clamp inventory of special sizes to fit certain vehicles.

In addition to covering the wide range of sizes, the manufacturer states that this clamp is completely self-locking and that it has sufficient take-up for use on synthetic rubber hose. Its construction is such that it can be easily installed around, or removed from connected lines, and that it is usable over again on either larger or smaller size hose. To get your free sample simply write L91 on the postcard.

L92. PM Records and Charts

Inasmuch as preventive maintenance starts with preventing wear by proper lubrication, fleet operators will be interested in the comprehensive records and charts prepared by one of the major, old line companies for distribution to fleet shops.

The lubrication charts will provide the fleet operator with detailed information as to the lubrication procedure and the records will provide excellent work control, dates of service and a basis of scheduling this important work. This combination of charts and records will bring the fleet shop up to date on the best wartime practices which can be continued profitably for many years to come. Write L92 on the postcard for your free copy.

(TURN TO PAGE 182, PLEASE)



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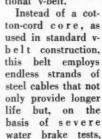
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P95. New V-Belt

Engineers of the Goodyear Tire & Rubber Co., Akron, Ohio, have developed a new rubber v-belt that, under severe tests,

showed many times longer service-life than the conventional v-belt.



are reported to stretch less than one-fifth of one per cent.

Developed for army tanks and other motorized military vehicles, this new v-belt promises higher efficiencies and less trouble for truck fan belt maintenance in the future.

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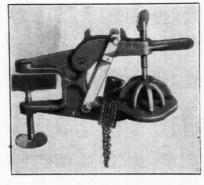
P96. Emergency Vulcanizer

The Shaler Company of Waupun, Wis., has developed a new portable, heavy duty vulcanizer for emergency tube repair. It is called the Shaler A-1 Fleet Service Special Vulcanizer and consists of a vulcanizing clamp, roughening tool and an assortment of hot patches.

The clamp is the quick-acting type sturdily constructed and so designed that the unit may be mounted on a work bench, running board, tail board or fenders of a truck. The quick-acting feature allows fast and efficient handling of repairs. The release opens the throat of the clamp to its full width so that heavy duty tubes can



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be easily inserted and the tube injury conveniently centered on the clamp platform. The clamp may be closed while guiding the spider prongs into the notches in the fuel pans. Clamps are held tightly closed by a ratchet device while the final pressure is applied by the thumb screw.

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P97. Stud Loosener

The job of soaking rusted or corroded studs for hours to loosen and remove them is obviated by the "Zingo" Hydraulic Cylinder Head Stud Loosener manufactured by The New Britain Machine Co. of New Britain, Conn.



This simple device consists of two pieces, one of which screws on to the stud and the other fits on top; the top part is filled

with penetrating oil. To remove a rusted stud, the mechanic simply strikes the tool with a hammer, the resulting hydraulic action forces the penetrating oil down into the threads with a tremendous pressure and thereby quickly loosens the stud.

Zingo Stud Looseners are made in three sizes: % in.-24 (fits Ford V-60), 7/16 in.-20 (fits Ford V-85) and 1/2 in.-20.

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P98. Toe-In Measuring Gage

A new type toe-in measuring gage has been placed on the market by Testing Apparatus, Inc., Detroit, manufacturers of the Micro-Linor front-end aligning equipment. This new gage is operated simply by at-



taching the grippers to the outside of the rim. The pointer is set at zero, then the vehicle is rolled forward. This action naturally should change the reading on the scale, which is the toe-in measurement in inches.

Once fastened to the rims for the front reading, the grippers hold the gage in place for the rear reading. Consequently the entire operation can be performed by a single mechanic. It is stated that the gage can be attached and both readings taken in less than two minutes-all without jacking up the vehicle. The manufacturer further states that due to the fact that the gage measures toe-in from the outer tread, and that the grippers remain in the same spot for both readings, extreme accuracy of measurement is insured.

(TURN TO PAGE 178, PLEASE)



DIESEL DATA

FUEL SPECIFICATIONS • • ENGINE SPECIFICATIONS • • FUEL TAXES

DIESEL FUEL SPECIFICATIONS

		SSU F.	Sedi-	10	%		IX. %	A.S.T.	M. DIS	STILLA	TION		la.	
DIESEL FUEL TRADE NAME	Cetane No.	Viscosity S. 100 Deg. F.	Water & Se ment Max.	Carbon Reel- due Max. %	Ash Max. 9	Flash Min. Deg. F.	Sulphur Max.	%01	20%	%06	End	Gravity	Pour Point Max. Deg.	AREAS OF DISTRIBUTION
American Oil Co. Ame-Fuel No. 2	45-50	35min.	0.05	0.1	0.01	140	0.25	428	502	581	625	30-34	0	From Maine to Florida.
Atlantic Refining Co. Furnace Oil Medium	> 4-5 0 6.4	33-40	0.06	0.20	*****	{130-	0.5	410	462		610		0	Mass., R. I., Conn., N. Y., State Barge Canal, Eastern half
Diesel Engine Fuel Oil	45	37-41	Trace		0.01	150	0.5	460	522	650	700	30min.	0	Penna., N. J., Del., Baltimore. From Philadelphia only.
Cities Service Oil Co. Diesel Fuel No. 1 Diesel Fuel No. 2	50-55 50-55		Trace	0.01	0.01 Trace	150 150	0.25	480 460	515 545	590 665	650 700	36-39	5 -10	New England and Middle Atlantic states. Central and Mid-Continent Areas.
Continental Oil Co.* Conoco Diesel Fuel	56 58 54 54 51 56 52	35-37 35 34-36 37-39 35-37	None Trace Trace Trace 0.05 Trace Trace	0.1 0.1 0.05 0.15 0.1 0.06 0.2	None Trace Trace Trace Trace Trace	150 215 200 150 150 150 150	0.15 0.15 0.2 0.2 0.8 0.2	490 498 474 352 412 480 525	512 528 496 484 473 494 552	553 576 542 541 528 555 634	600 625 610 640 700 630 700	38-40 36-38 38-40 39-41 34-36 39-40 35-37	15 0 -5 20 0	Okla., Kan., Neb., Iowa, III., Ind., Mo., Minn., Colo., Tex., Ark. Texas. Colo., Wyo. New Mexico, Texas. Colo. Montana.
Esso Marketers Essociesel 206 Essociesel 210	52 50	36 38	0	Nii 0.01	0	170 170	0.5 0.65	450 450	505 540	580 645	640 710		-0 +10	N. E., N. Y., Pa., S. C., N. C., Va., W. Va., Tenn., La., Ark., Md., Del., D. C., N. J.
Phillips Petroleum Co. Phillips Diesel Regular Phillips Diesel Regular Phillips Diesel Special Phillips Diesel Light	50 50 50 50	35-40 33-40	Trace Trace Trace Trace	0.05 0.02 0.02 0.01	0 0 0	150 150 140 125	0.5 0.2 0.15 0.15	490 460 440 410	525 550 520 400	600 630 600 500	675 675 650 525	38-40 38-40 39-41 42-44	0-10	Colo., N. M., Western Texas. Ark., Kan., III., Iowa, Minn., Mo., Neb., Okia. Kan., III., Iowa, Minn., Mo., Neb. Kan., III., Iowa, Minn., Mo., Neb.
Pure Oil Co. Energee Diesel Fuel 138.	45min.	33min.	0.05	0.20	Trace	130	0.25	420-	490-	580 -	630-	36-43		East of Mississippi River, excluding New England, including
Richfield Oil Corp. Richfield Diesel Fuel	42	37	0.05	0.08	0.01	150	0.75	471	₹500	615	690	32.6	0	Minnesota.
Shell Oil Co. (San Fran.) Dieseline	42-45	35-40	0.1	0.1	0.01	150	1.0	{425-	550	600		29min.	0-15	Cal., Ore., Wash., Nev., Ariz., Idaho, Utah.
Motor Bus Diesel Fuel	49-52	32	Trace				0.5	1475 385	450	483	****	38-44	-10	Cal., Ore., Wash., Nev., Ariz.
Shell Oil Co., Inc. (N. Y.) "Dieseline"	45min.	34min	0.05	0.03	0.01	150	1.0	425	495	595	660	33-40	0	Ark., Iowa, La., Minn., Mo., Texas and East of Mississippi
Sinclair Refining Co. 155 Diesel Fuel. 250 Diesel Fuel.	55 55	32 35	0	0.01 0.02	0	125 150	0.05 0.25	385 440	425 510	490 600	525 630	41-43 34-40		All states listed below. Me., N. H., Vt., Conn., R. I., Mass., N. Y., N. J., Del., Pa., Md., D. C., Va., W. Va., Ala., Fla., Ga., Miss., N. C.,
346 Diesel Fuel	45	34	0	0.1	0	130	0.10	420	490	570	650	38-40	0	S. C., Tenn., Ky., Okla., Ark., La., Texas, N. M. Ind., Ill., Mich., Ohio, Wis., Utah, Colo., Wyo., Idaho, Iowa,
347 Diesel Fuel	50	33	0	0.1	0	130	0.5	420	490	570	650	32-38	0	Utah, Colo., Idaho, Wyo., Iowa, Kan., Minn., Mo., Mont.,
355 Diesel Fuel	50	36	0	0.2	0	150	0.25	450	520	600	660	36-39	10	Nev., Neb., N. D., S. D. Ind., III., Mich., Ohio, Wis., Utah, Colo., Wyo., Idaho, Iowa.
Socony-Vacuum Oil Co. Mobilfuel Diesel	50min. 50	35min. 31	Trace Trace		0.01 Trace	150 115	0.5 0.5	410	520 460	600 520	700 560		0 -20	Kans., Minn., Miss., Mont., Neb., N. D., S. D. Wherever demand exists. Whorever demand exists.
Standard Oil Co. of Cal.** Standard Diesel	43-45	37-40	Trace	0.02	Trace	∫150-	1.25	425	540	∫620-	710	31	0-15	Cal., Ore., Wash., Idaho, Nev., Ariz., Utah, Hawaii, Alaska.
St'd Automotive Diesel	50min.		Trace	0	0	200 125	0.03	350-	[420-	675 450	585	44	-15	Main supply points Cal., Wash. and Oregon.
Standard Oil Co. of Ind. Stanolind H. S. Stanolex Standard Light.	50 45 50	35 33 32	Trace Trace Trace	0.10	0.01 Trace Trace	160 150 150	0.32 0.16 0.08	432 420 395	494 475 440	572 565 500	672 625 560	38 37.1 41.5	0 -10 -20	Mich., Ind., III., Minn., Iowa, Mo., N. D., S. D., Kans., Mont. Wyo., Colo., Wis. Also in Neb. by Standard Oil Co. of Neb.
Sun Oil Company Diesel Fuel Light	50-55	33-36	0.05	0.10	Trace	125	0.15	440	520	620	650	34-39	5	Phila., N. J. (Atlantic City, Newark, Trenton); Wilmington Baltimore, Providence, Bridgeport, N. Y. (N. Y. C., New
The Texas Company 445 Diesel Chief422 Diesel Chief	50-58 45-55			0.05 0.05	0.01	150 140	0.75 0.50	450 390	490 430	580 480	600 500	35-40 40-45		burgh, Peekskill, Syracuse, Rochester, Westchester Co.).
Tide Water Assoc. Div. (Cal.) Assoc. Motor Diesel	42-45		Trace		Trace	150	0.75	460	510	640	720	31-34		Cal., Ore., Wash., parts of Idaho, Nev., Ariz.
Union Oil Co. of Calif.	47	39_40	Trace	0.05	Trace	150	0.75	475	540	640	700	33	20	Ariz., Idaho, Nev., Cal., Ore., Wash.

^{*—}On all Continental Oil Company specifications, carbon residue figures are based on the "10% bottoms test."

**—Standard Oil Co. of Cal. Most of the data submitted by this company are based upon approximate current tests and not as guaranteed specifications.

If the fleet operator having diesel trucks is concerned about the quality of fuels obtainable, he will find in the table at left the latest specifications of all fuels from the refiners' laboratories.

On this page, the diesel maintenance man will find the basic engine specifications such as horse-power rating, compression ratio, torque, valve diameter and lift, etc., as well as the engine manufacturers' recommendation for the minimum cetane number of the fuel.

A breakdown of the state fuel taxes, methods

A breakdown of the state fuel taxes, methods of collection and a comparison with gasoline taxes also is supplied.



DIESEL ENGINE SPECIFICATIONS

					Н	ORSEPOW	ER					TOROUE			VALVE	S	2		
DIESEL		*3			With Bare Engine		itandard ssories	- to	Pressure	800E	\$mg	- E	3				Opening	Pended	
ENGINE MAKE AND MODEL	Type	Number of Cylinders Bore and Stroke (in.)	Cycle	Piston Displacement (Cu. In.)	Maximum Brake Hp. at Specified R.P.M.	Max. Intermittent Hp. at Specified R.P.M.	Continueus Sustained Hp. at Specified R.P.M.	Compression Ratio	Max. Combustion P (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lbs. per Sq. in.)	Weight per Continuous Hp. (Lb.)	Max. Torque in Lb. at Specified R.P.M.	Shipping Weight (Lb.)	Arrangement	Intake Port Diameter and Lift (In.)	Exhaust Port Diameter and Lift (In.)	Preseure Nozzle C (Lb. per Sq. In.)	Minimum Recommended Cetane Number of Fuel	Starting Method
BUDA 6-DT-3176-DT-389	AC AC	6-35/8x51/8 6-37/8x51/2	4	317 389	90-2300 96-2100	75-2300 74.5-2100	52.5-1800 57-1600	14.50 14.20	725 725	73 73	21.8 24.5	185.4-1500 222.5-1100	1133 1400	VI	1.37486 1.44476	1.18486 1.31476	2000 2000	46 46	Ele Ele
CUMMINS A H H	DI DI DI	6-4x5 4-478x6 6-478x6 6-478x6	4 4 4 4	377 448 672 672	100-2200 ^m 100-1800 ^m 150-1800 ^m 200-1800 ^m	85-2200** 83-1800 125-1800 175-1800	57-1600 ^m 50-1200 ^m 85-1400 ^m 130-1400 ^m	18.00 17.00 17.00 14.00	750 750 750 925	75 74 72 114	24.2 32.8 25.5 21.5	275-1200 340-800 500-800 625-1400	1930 2540	VI VI VI VI	1.75500	1.37406 1.75500 1.75500 1.75500		50 50 50 50	Ele Ele Ele
DODGE T-126	AC	6-3%x5	4	331	100-2600		92.5-2600	14.75	900	87	14.4	240-1600	1338	VI	1.55375	1.31375	2000	40	Ele
GEN'L MOTORS 3-71. 4-71. 6-71.	DI DI	3-414x5 4-414x5 6-414x5	2 2 2	212 284 425		45-1200 60-1200 90-1200	62-2000 83-2000 123-2000	16.00 16.00 16.00	980 980 980	70 70 70	18.5 15.7 13.5	283-1000 350-1000 525-1000	1300	VI VI VI	No Valves No Valves No Valves	1.25375 1.25375 1.25375		45 45 45	Ele Ele
HERCULES DJXB. DJXC. DRXB. DHXB	TC TC TC	6-3½x4½ 6-3¾x4½ 6-4¾x5¼ 6-5x6	4 4 4	260 298 474 707	77-2600 83-2600 120-2000 176-1800	66-2600 71-2600 102-2000 150-1800	51-1800 59-1800 89-1600 121-1400	14.50 14.50 14.50 14.50	750 750 750 750 750	86 87 94 97	17.2 14.8 16.1 20.7	178-1400 208-1500 350-1300 530-1400	875 1435	VI VI VI VI	1.62375 1.62375 2.00395 2.37500	1.12375 1.37395	1650 1650	45 45 45 45	E-0 E-0 E-0
MACK END406 END457 END806	LE LE	6-4x53/8 6-41/4x53/8 6-45/8x6	4 4 4	405 457 605	107-2200 144-2000	94-2200 130-2000		14.60 14.60 14.63	840 840 840			308-1200 355-1100 455-1100		VI VI VI	1.56418	1.50418 1.56418 1.64500	1400	46 46 46	Ele Ele
WAUKESHA 6BKH	DI DI DI	6-3 ³ / ₄ x4 ¹ / ₄ 6-4 ¹ / ₄ x5 ¹ / ₂ 6-4 ¹ / ₂ x5 ¹ / ₂ 6-4 ³ / ₄ x6	4 4 4	282 468 525 638	83-2800 114-2250 128-2250 143-2000	67-2800 95-2250 109-2250 121-2000	44-1800 67-1500 75-1500 86-1400	6.40 5.80 5.80 5.60	500 500 500 500	65 73 74 76	22.1 22.5 21.0 21.3	174-1400 342-1000 383-1000 450-900	1510	VI VI VI	1.87531	1.25375 1.37469 1.37531	750 750 750 750		E-I Ele Ele

Without fan or muffler AC—Air Chamber

DIESEL FUEL TAXES

STATE	State Gaso- line Tax	State Diesel Fuel Tax	DIESEL FUEL TAX REMARKS	STATE	State Gaso- line Tax	State Diesel Fuel Tax	DIESEL FUEL TAX REMARKS
Alabama	6	6	Same if used in motor vehicles on highways.	Nevada	4	5	Increase made effective July 1, 1939.
Arizona	5	5	Paid by user if used in motor vehicle on highways.	New Hampshire	. 4	4	Same as gasoline tax.
rkansas	616	61/2	Paid by user if used in motor vehicle on highways.	New Jersey	3	3	Same as gasoline tax.
California	3	3	Same as gasoline tax.	New Mexico	5	5	Collected from licensed and bended user direct.
Colorado	4	4	Same as gasoline if for use on highways.	New York	4	4	Same as gaseline tax.
Connecticut	3	3	Collected by distributor.	North Carolina	6	6	Same as gas tax if used as motor vehicle fuel.
Delaware	4	4	Same. Diesels pay twice the registration fee.	North Dakota	A	4	Same as gasoline tax.
Dist. of Col.	3	3	When used in equipment on the highways or intended	Ohio	A	A	Same as gasoline tax.
			to be used thereon.	Oklahoma	51/2	51/6	Same if used in motor vehicles on highways.
Florida	7	7	Diesel tax made effective July 1, 1939.	Oregon	5/2	8	Diesels also charged higher license fee-Truck
Beorgia	6	8	Same if used in motor vehicles on highways.	Oregon		9	\$1,50 per 100 lb. light weight.
daho	5.1	5.1	Collected through oil companies.	Pennsylvania	4	A	Taxable only if used in motor vehicles on highways.
llinois	3	3	Collected from licensed distributor and user direct.	Rhode Island	2	2	Same as gasoline tax.
ndiana	A	A	Tax paid on sales basis if used on the highways.	South Carolina	9	8	Paid by user if used in motor vehicles on highways.
owa	2	2	Same as gasoline tax if used on highways.	South Dakota		4	Paid by user if used in motor vehicles on highways.
Kansas	3	3	Doid by year if yeard in motor yehicles on highways.	Tennessee	4	4	Paid by user if used in motor vehicles on highways
Kentucky	8	8	Paid by user if used in motor vehicles on highways.	Texas.	4	1	
ouisiana	3	9	Paid by user if used in motor vehicles on highways.		4	9	Same as gasoline tax.
Maine	4	4	Paid by user if used in motor vehicles on highways.	Utah	4	4	Paid by user if used in motor vehicles on the highway
	4	1 1	Paid by user if used in motor vehicles on highways.	Vermont	4	No	Diesel vehicles charged twice the registration fee.
Maryland	4	4	Same as gasoline tax.	Virginia	5	9	Collected from licensed "User-Sellers" and "Users
Massachusetts	3	No	Diesels pay higher registration fee.	Washington	5	5	Diesels also pay 25% capacity license fee on gros
Michigan	3	3	Collected by wholesale distributor.		-	-	weight.
Minnesota	4	4	Tax paid on declaration of use by licensed user.	West Virginia	5	5	Same as gasoline when used on highways.
Mississippi	8	6	Same if used in motor vehicles on highways.	Wisconsin	4	4	Same as gasoline tax.
Missouri	2	2	Same if used in motor vehicles on highways.	Wyoming	4	4	Same as gasoline tax when used on highways.
Montana	5	5	Paid by user if used in motor vehicles on highways.	FEDERAL	11/2	No	No tax collected at present.
Nebraska	5	No	In addition to regular truck registration fee, diesel vehicles pay a special fee twice the regular.				

DI-Direct Ignition E-G-Electric or Auxilliary Gasoline Engine

E-H-Electric or Hand Ele-Electric

LE—Lanova Energy Cell TC—Turbulence Chamber

VI-Vertically In-head

ECIFICATIONS



*—First Grease for pin and bushing type; 160 for needle bearing type
**—Use 90EP below 30°, 140EP above 30° on all
***—Is 160EP on 5-speed transmissions
†—19% kerosene in extremely low temperatures
††—19s 40 for high speed above 90°
\$—Use 50 for high speed above 80°
\$—Use 60 for high speed above 80°
\$—Use 61 for high speed above 80°

;—Use 90EP with dual performance axies. Do not use EP in double reduction axies

Double reduction and 2-speed axies 110EP

B-Double reduction and 2-speed axies 90EP (140EP

at temperatures above 100°)

A-Also front axie

G-Use 90EP in two-speed axies on Models 147, 154, 156.

d—If equipped with steering column shift use 90 e—If equipped with steering column shift use 50

f—Under severe conditions use 140
FG—Fiber gressure
FG—Fiber Gresse
H—Heavy duty
Hyp—Hypoid lubricant
Kero—Kerosene
N—Normal duty
(\$\$3\$—Surmer
\$\$\$—Cylinder oil sodium soap grease
(\$\$W\$)—Winter

gine, fransmission, rear axle, steer-The first step in every good PM and truck conservation program is proper lubrication. Here are specific recommendations for the correct oils and greases for the ening gear and universal joint as sup-plied by the various truck manufacturers for their makes and models. These specifications are unusu-

the recommendations given for standard units will be noted. Simi-larly, where high speeds or severe operating conditions might be en-countered these specifications indially complete. For example, where trucks are equipped with steering column shift levers, double reduccate such changes as will insure the best performance with minimum wear to the vital operating parts.

TRUCK MAKE AND MODEL		ENGINE		TRANS	TRANSMISSION	REAR	REAR AXLE	STEERING GEAR	G GEAR	CNI
	>	Viscoeity and Temperature Range	Sange	Summer	Winter	Summer	Winter	Summer	Winter	VERSAL
AUTOCAR — All Models (1935-39) All Models (1940-42)	(S)40 (S)30#	(W)30 (W)20		160	900	910	58	160	000	160
BANTAIM 60.	(S)30 (S)30	(W)20 (W)20		140	06	160	88			None
BROCKWAY 78, 83, 88, 82, 84, 112, 128, 146, 147 (1935-42). 162, 153, 184, 155, 162, 166, 170X, 175X, 185X, 220X, 240X, 260X (1934-42).	N30 above 32° N40 above 32°	H40 above 32° H40 or 50 above 32°	30 below 32° 30 below 32°	160	110	160(C) 160(C)	110(C) 110(C)	091	92	991
CHEVROLET—All Models (1935). All Models (1936-37). All Models (1938-37).	20 above 75° 20W @32° to 75° 30 above 50° 20@30° to 80° 30 above 50°	10W@-15° to 32° 20W@10° to 80° 10W@10° to 45° 20W@10° to 30°	80% 10W, 10% Kero below -15 90% 10W, 10% Kero below 20 90% 10W, 10%	160	90 108	160	900			160-001
All Models (1939). All Models (1940–42).	20@30° to 50° 20 or 20W above 32° 20 or 20W above 32°	10W@10° to 10° 20W@10° to 30° 10W@-10° to 10° 20W@10° to 30° 10W@-10° to 10°	Kero below -10° 90% 10W, 10% Kero below -10° 90% 10W, 10% Kero below -10° Kero below -10°	9 9	8 8	34-Ton 90EP 90 34-Ton 90EP 90Hyp	3/4-Ton 90EP 90 3/4-Ton 90EP 90Hyp			8 8
CDRBITT—All Models (1934-38). All Models (1939-42).	(S)40 (S)40	(W)30 (W)30		110	08	160	006	991	160	180
DIAMOND T—211, 211A, 220, 228, 227, 242, 243, 262, 311B, 311C, 312, 351B, 351C, 382, 411B, 412B, 511B, 512B, 611DR, 412DR, 612DR, 612DR	40 above 40°	30 below 40° 30 below 40° 30 below 40° 30 below 40° 30 below 40° 31 below 40° 30 below 40° 30 below 40°		091 091 091 091 091 091 091 091	33333333	**************************************	**************************************	160 160 160 160 140 140 140 140 140 140 140 140 140 14	1860 1860 1466 1466 1466 1466 1466 1466	25 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
DODGE_LC. LE, LF, K-50V, K-60V, ME, MF, ML, MK, RE, RF, RL, RK, TE, TF, TL, TK, VL, VK. LG, LH, MG, MH, RG, RH MG, RT, TD-1S, VC, VD, WC, WD. MD, RD, TD-20, TD-21, TG, TH, VG, VH, VF, VM, WF, WFM, WG, WH, WGM, WHM WL, WLD, WFO, WF, VM, WF, WFM, WG, WH, WGM, WHM	40 above 90° 30@32° to 90°	20W@10° to 32° 10W@ -10° to 10°	80% 10W, 10% Kero below -10°	140 140 140 140 140 140 140 140 140 140	90EP 90EP 90EP 90EP	140EP 140EP 140EP 90Hyp 140EP 90Hyp 90EP	90 90EP 90EP 90EP 90EP 90EP	222222	222222	5335533

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FEDERAL—15, 18, 20, 25, T10B, T10W (1835). 28, 29, 30, 40, 40DR, 50, C7, C8, X8, X8R (1835). All (1838-37). § (1830). 7 (1940). C7, C8, 40, 50, 40F, 50F, 62, 65, 66 (1839).	(5)30 (8)30 (8)50 N30, H40@50° to 110° N40, H50@50° to 110°	(W)30 (W)30 (M)30 N20, H30@15° to 50° N30, H40@15° to 50°	N10, H20@ -20° to 15° 20@ -20° 15° 30° 30° 30° 30° 30° 30° 30° 30° 30° 30	3000000 300000 30000000000000000000000	353333	995	222888		
40, 50, 30H, 82, 36, 68, 62, 66, 66 (1960-42). 40, 50, 50H, 82, 56, 66, 62, 66, 66 (1960-42). 40, 50, 50H, 11K, 12, 12K, 14, 14, 14, 18, 18, 18, 17, 18, 18K, 20, 20K, 25, 25K, 29, 29H, 29K, 28, 10, 11K, 12, 12K, 14, 14, 14, 18, 18, 18, 18, 18, 18, 18, 18, 18, 18	N40, H50@50° N40, H50@50°	N30, H40@-15° to 50° 30@15° to 50°	N20, H30@ -20° to 15° 20@-20° to 15°	99 99	8 8	160	2 8		
FORD—All (1839-38)	60 above 90° 40@30° to 110° 40 above 90°	30@20° to 65° 30 above 32° 30 above 32°	20W above 10° 10W above -10° 90% 10W, 10% Kero below -10°	140 140(d) 140(d)	90 or 110 90(e) 90(a)	140EP (M) 140EP (M)	90EP or 110EP 90EP(M) 90EP(M)	9 88	90 or 110
HA, T	(\$)40	(MW)30 (MW)40	(W)20W (W)30	140	88	140EP	90EP 90EP	140EP 140EP	90EP
GENERAL MOTORS—TI6, T18, T33, T33L, T43T, T23 (1934-35) T46 (1934-35) T16, T18, T76H, T77, T73, T73H (1934-35) T14, T18, T76H, T76H, T78, T75H, T78, T73H, T78, T78H, T78, T78H, T78H, T78H, T78H, T78H, T78H, T78H, T88H, T8	40 above 90° 50 above 35° 40 above 35° 40 above 36° above 80° 20 above 80° 20 above 80° 20 above 80° 20 above 10° 20 ab	30@32° to 90° 30@32° to 90° 30@32° to 30° 30@ 40° to 80° 40° to 80° 50° 50° 50° 50° 50° 50° 50° 50° 50° 5	20W@32° to 0° 10W below 0° 20@30° to 70° 10W@10° to 45° 10W@ -10° to 45° Kero below -10°	160 300% 300% 90 1140 or 160 90(f) 90(f)	90 below 16° 1106° 115° 10° 36° 90 below 15° 10° 36° 90 90 90 90 90 90 90	160 35° 36° 38° 38° 140 or 160; 140 or 160; 140; 140; 140; 140; 140;	110@ 15° to 36° 90 below 15° 16° to 36° 90 below 15° 90‡ 90‡ 90† 90† 90†	160 160 3%% 140 or 160 and 3%% 3%% 3%% 3%% 3%% 3%% 3%%	160 110 3%\$\$ 3%\$\$ 90 or 110 3%\$\$ 90 and 3%\$\$
AF-680, AF-700, AF-800, AF-850 (1939-42)	N20@32° to 110°	20 to 30@10° to 32°	10 to 20 halow 10°	160	06	160	06	160	06
GRAMM—AII Models (1985-42). HUQ—63W, 88W, D92U, D98, D99S, 60-6.	40@50° to 110°	30@15° to 50°	20W@ -20° to 16°	041	88	140	88	991	88
87W, 92U, 98, 44-4, 45-4, 89, 98S, 46-4.	-	20W above 10°	10W above -10°	110	8	110EP	90EP	110	110
INDIANA All Models (1834-40) INTERNATIONAL—All Models		(30@32° to 90° (20W@10° to 32°	10W@ -10° to 10°	140	06	140**	**06	140	06
KENWORTH—146, 1465W, 1465BT (1938-37) 241A, D241C, 346C (1938-37) All Others (1938-37) H30 (1938) 506 to 512, 514, 515, 515, 515, 519, 520 to 524, 543 to 548, 549, 550, 552 (1938-42) 513, 536, 537, 538, 621, 622 (1938-42) K25, 526, 525, 529, 539, 540, 141, 642 (1933-42)	(S) 30 (S) 50 (S) 50 (S) 40 50 above 32° 50 above 75° 40 above 56° 50 above 60°	(W)20 (W)30 (W)30 (S)30 40@60° to 90° 30@22° to 75° 30@85° to 80° 30@ below 0° to 32°	30@10° to 80° (200%) -10° to 10° 200%) below 32° 200%, -0° to 5°	22222 222	38888 8888	35355 5355	88888 8888	55555 5555	55588 8888
661, 563, 664, 655, 566 (1938-42). LA FRANCE REPUBLIC - C3, D4, E4 (1934-35). E4, H8, K1, M4, MT4 (1934-38). EH58, EH5D, EH68, EH6D (qasoline engine).	50 above 40@32° t 50@32° t 40@50° t	30@0° to 32° 30@0° to 32° 30@16° to 50°	20W@15° to 0° 20W@15° to 0° 20W@-20° to 15°	5353	8888	3535	2222	944	5555
FH5B, FH5D, HH7, KH2, MH3 (gasoline engines) MARMON-HERRINGTON—Ford Conversions	20@20	(M)30 (M)30 (M)40	(W)20 (10 below 10°) (W)30	94	068	140A	90A	90EP	90EP
AN OTHER MODES.	40 ahove	30@0° to 32°	20 below 0°	140	96	250	140		
REO —All Models (1934-39) All Gasoline Models (1940-42)	30 above 20 above 40 above	20W@0° to 18° 10W below 32° 20@0° to 50°	10W below 0° 20 below 0°	140 140 140	288	565	888		
STERLING—FEBO De Luxe, FB60 De Luxe, FB70 De Luxe (1934-38) FB60, FD90, FC90 (1934-38) FD97, FD116, FC100, FC134, HC140, HC170 (1934-38) FB7130 (1934-38) FB7130 (1934-38) FB7130 (1934-38) FB7130 (1937-38) FB7130 (1937-38) MB75, MB75, MB86, MD86 (1938-42) (gasoline) MB90, MB90, MG775, HC175, HC176, HC176, HC176, HC176, HC176, HC177, HC176, HC177, HC176, HC177, HC176, HC177, HC17	60000000000000000000000000000000000000	30@0° to 32° 30@0° to 32° 30@0° to 32° 30@0° to 32° 30@1° to 36° 40@15° to 50°	20W@15° to 0° 20W@0° to 15° 20W@0° to 15° 20W@0° to 15° 20W@-20° to 15° 30@20° to 15°	333333	888888	41 44 44 44 44 44 44 44 44 44 44 44 44 4	888888	58585 565 1066 1066	12 8 1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
1891, 1019, 1019, 1019, 1019, 1019, 1019, 1018, 1018, 10178, 10181, 1018	50@50° to 110°	40@15° to 50°	30@20° to 15°	140	06	140	8	140	140
STEWART - 40A.		(W)20 (W)30 (W)30		555	822	888	822	333	825

LUBRICATION SPECIFICATIONS CONTINUED FROM PAGE 65

TRUCK MAKE AND MODEL		ENGINE		TRANSA	TRANSMISSION	REAR	REAR AXLE	STEERIN	STEERING GEAR	UNI-
	is v	Viscosity and Temperature Range	Range	Summer	Winter	Summer	Winter	Summer	Winter	VERSAL
STUDEBAKER—T2, T4, T6, T8 (1834); IT200, IT600 (1935). W8 (1834); IW700, IW900 (1835). ZT2, 2M6, ZTR2 (1836). ZT2, 2M6, ZTR2 (1836). ZT2, 2M6, ZTR2 (1836). ZT2, 2M6, ZTR2 (1836). ZT3, ZTR3, ZT	30 above 45°†† 56 above 32° 50 above 48°†† 40 above 52° 50 648° to 80°†† 30 above 45°†† 40 bove 32° 50 above 45°†† 40 above 48° 50 above 68° 50 abov	200 10° to 45° 4000° to 32° 4000° to 32° 2000° to 45° 20° 20° 20° 20° 20° 20° 20° 20° 20° 20	10 below 10° 30 below 10° 30 below 10° 20 below 10° 20 below 0° 10 below 0° 10 below 0° 30 below 0° 10 below 10° 10° 10° 10° 10° 10° 10° 10° 10° 10°	140 140 above 32° 140 above 32°	90 90 90 90 90 90 90 90 90 90 90 90 90 9	140 above 32°	90 below 32° 90 be		1	
WALTER-All Models	(S)B0	(W)30		140	80	140	80	140	06	
WHITE—All Models	40 above 90°	30 above 32°	20 above 10° 10 above -10°	140	06	140	06			140
WILLYS-77 (1833-36) 77, 38, 48 (1837-39) 440, 441, 441P, 442, 442P	30@40° to 80° 30 or 20W above 32° 30 above 90° 20 above 32°	20@15° to 40° 10W above -10° (20W-10° to 32° (10W-10° to 10°	10@ -15° to 15° 90% 10W, 10% Kero below -10°	190 to 210 90 90	150 to 170 90 90	190 to 210 90 90 90	150 to 170 90 90	190 to 210 190 to 210 250	150 to 170 150 to 170 250	555

ABBREVIATIONS

- *—Fibre Grease for pin and bushing type; 160 for needle bearing type media bearing type 2-greed at less 30°; 140EP above 30° on all 2-greed at less 1.0EP on 5-speed transmissions 1—10% kerosene in extremely low temperatures 1—10% kerosene in extremely low temperatures

- A—Also front axle

 G—Use 90EP in two-speed axles on Models 147, 154,

 156

 d—If equipped with steering column shift use 90

 f—Under severe conditions use 140

 FP—Extreme pressure

 FG—Fibre Grease

1+ Use 40 for high speed above 90°
5—Use 80 for high speed above 80°
5—Use 40 in 672 and 707 Diesel engines
5—Use 40 in 672 and 707 Diesel engines
5—Use 90EP with dual performance acles. Do not
use EP in double reduction acles
a—Double reduction and 2-speed acles 10 EP
b—bouble reduction and 2-speed acles 90EP (140EP
at temperatures above 100°)

- H—Beavy duty
 H-Pp—Hypoid lubricant
 Kero—Keroene
 M—Midd
 N—Nide uty
 (\$)—Summer
 \$\$-Cylinder oil sodium soap grease
 (W)—Winter

TRAILER

REGISTRATIONS

(As of December 31, 1942)

Passenger Car Trailers	l		(2)	9,240		*****	(2)		15,199	(2)		08	(2)	(2)	(2)	1,119	(2)
Trailers and Semi-Trailers	11,000	7.092	17,317	157,672	110,963	8,200	47,457	6,451	4,159	2,673	6,233	8,300	2.750	48,100	47.726	(3)	140,000
	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio
Passenger Car Trailers	(1)		9	(5)	Ξ	5,353	(3)	(2)	13,700	9.618	21.000	(3)	€	(2)	2,211	(1)	3
Trailers and Semi-Trailers	5.883	5.500	14.943	187,431	1,991	1.122	(3)	788	6.700	5.459	392	30,429	77.152	100.000	6.050	9	14.383
	ma		888	mia	do	seticut	are	st of Columbia								rkv	500

(1)-Not registered separately.

(2)-Included with commercial trailers.

(3)-Included with trucks

1,276,192

BATTERY DATA

BATTERY TYPE AND CAPACITY BY TRUCK MODELS



	BA	TTE	RY		BA	TTER	RY		BA	TEF	IY
TRUCK MAKE AND MODEL	Amp. Hr. Capacity	Number of Plates	Terminal	TRUCK MAKE AND MODEL	Amp. Hr. Capacity	Number of Plates	Terminal	TRUCK MAKE AND MODEL	Amp. Hr. Capacity	Number of Plates	Terminal Grounded
AUTOCAR A, B, UA, UB, C10, U10, C20, U20, C30, U30 RM, RL, D, UD, UDD DF, N, NF, DH, DS UDF, UN, UNF, US UT, SUTR, 6X2UT, T, C, 6X2UT RMT, 1TR, 6X2RL, IUTR, 6X2UD	118 135 152 152 152 135*	15 17 19 19	P P P P	DODGE—(Cont.) WD (1942) WF, WFM (1942) WG, WH, WGM, WHM (1942). WL, WK (1942). WLD, WKD (1942).	95 105 119 136 136**	15 15 15 17 17	P.P.P.P.	MARMON-HERRINGTON—(Cont.) C55-4, C55DR-4, C80-4, C60-6, C70-4, C70-6, DSD500-4, DSD550-DR4, DSD600-4, DSD600-6, DSD700-4, DSD700-6. C80-4, C80-6, DSD800-4, DSD800-6. DSD900-4, DSD900-6, DSD1000-4, DSD1000-6.	116 120	15 13	P P
RMT, 1TR, 6X2RL, 1UTR, 6X2UD. 2TR, 3TR, 4TR 2UTR, 3UTR, 4UTR RLD, DP, C40, C40D, U40, U40D. 6X2DF, 6X2NF, 6X4DF 6X2T, 6X4TO, 6X4TD, 6X4TC, 6X4S.	118* 135* 135* 135 135	15 17 17 17 17	PPP	FEDERAL 7, 8, 9, 10, 11, 11H, 12, 14 15, 15H, 18H, 20H, 75 16, 17, 18, 20, 76, 77, 80 18, 20 (Late 1941)	100 100 118 135	13 13 15 17	PPP	OSHKOSH W900 All Other Models.	138 204 153	15 25 17	P
4X4DF, 4X4N, 4X4NF	152 118	17 17 19 15	PP	18, 20 (Late 1941) 25, 29, 25H, 29H, 35, 45, 40, 40DR, 50, 50H 62, 63, 65, 66 (12-volt) C7, C7W, C8, C8W, C8H 75, 90, 75H, 80H 85, 89, 85H, 89H, 90, 92, 94	135 135 135* 135	17 17 17 17	PPP	REO 450, 450L, 475, 475L, 650, 650L, 675, 678L, 1A4, 1C4 1A4H, 1C4H, 1B7M, 2B7M	90	13	NN
C10T, U10T, C20T, U20T, C30T, U30T DC10, DC10T, DU10, DU10T, DC20, DC20T, DU20, DU20T C40, U40, C40D, U40D, C50D C40T, U40T, C4082, C4084, U4064,	101° 135°° 135	13 17 17	PPP	FORD		13 17	P	1B4, 1D4, 1B4H, 1D4H, 2B4, 2D4, 2B4, 2D4, 2J5, 2H5, 1L5 2LM7, 2LMH7	90	13 25 15	N N
C50T DC50T C80, U60, U60D, C70, U70, C70D, C7044, 380, U80, C80D, U80D	118° 237° 152	15 25 19	P P	(1939) (1940-42) FWD HS, HG, HM, SUA, SU, YU, HA, HR, M6, CU, CUA, T26, T30, T32, MJ6, M7, M10, MJ6X6, M6X6		17	P	2L4, 2L4H, 2LC4. 19, 20. 21, 22, 23. 4D19. 6D19, D20. 23H, 25. 27.	240 140 90 136 204	25 15 13 17 25	NNNNP
C80T, U80T, C70T, U70T, C7062, U7062, C7064, U7064, C80T, U80T, C8044, C8062, U8062, C8064, U8064, C90, U90, C90T, U90T, C900, U90D, C9044, C9062, U9062, C9064, U9064	135*	17	P		1	19 15 15	P	8D19, D20. 23H, 25. 27. STERLING	272* 170 133	33 21 15	PNN
C9044, C9062, U9082, C9064, U9064 DC100T, DU100T, DC100D, DC10044, DC10062, DU10062, DC10064, DU10064	152**		P	GENERAL MOTORS AC100 to 450 (1940) AF300 to 450 (1940) AF240 (1941-42) CC100 to 450 (1941-42) CF300 to 450 (1941-42) AC500 and up (1939-42) AF500 and up (1939-42) ADC 500 and up (12-voit) ADF500 and up (12-voit)	86 125 100 115 115	13 19 15 17 17	P	MB75, MB85, MC87, MB90, MC96, JB90, HD105, HD110, JD135, JD137, HD145, HD165, HC105, HC115, JC115, JC137, HC144, JC145, HC145, HC147, HC156,			
60, 65. ROCKWAY 78, 83, 89, 92, 94 112, 128, 146, 147, 152, 153, 154, 156, 162, 166		11	P	HIIG		25	PPP	HD175, HC175	158 170°	23	P
162, 166 160X, 165X 170X, 175X, 195X, 220X 240X, 260X	135 135 152 118	17 17 19 15	PPP	98, 99, 99S, 44-4, 45-4, 46-4 D42, D43, D43L, D98, D99, D99S, 42W, 87W, CB8P 15W, 19W, 83W, 85W, CB6P, CB7P	153 153 105	19	N N	40A, 60A, 61A, 62A, 47A, 50A. 38A, 49A, 51A, 58A, 59A. STUDEBAKER		15 17	P
HEVROLET All Trucks (1935-38). (1937-38). (1939-38). (1939-38). (1940-42).		15 15 15		INTERNATIONAL K1, K2, K3, K4, K54, K5, K55, K6COE, K55COE (1941-42) K6, K56, K5T, K56T, K6F, K7, K57, K7COE, K57COE (1941-42) K6, K57COE (1941-42)			P	STUDEBAKEN K5, L5, K10, K15, K15M. K20, K20M, K25, K25M. K20D. K30, K30M. All Models (1841-42).	136 136** 153 90	15 17 17 19 13	2000
(1940-42) CORBITT 12B, 13B, F12, 17B, F14, 14BT, 21B 26D, F23, F27, F35, 18BT, 22BT, 27BT F18		15	N P	K7COE, K87COE (1941-42) K8, K88, K8COE, K88COE, K8T, KR8, KR8COE, KR8T, K88T, K8F, K10, KR10, KS10, KR11, KS11, KR11COE, KS11COE, KR11T, KS11T, K11F, KR12F (1941-42)	127	15	P	WALTER FN, FM (1940-42) FKM, FC, FCK, FB, FBR (1940-42) FXB, FXR (1940-42)		17 15 17	200
MAMOND T		13 17		KENWORTH 505 to 512, 514, 515, 516, 519 to 524,			P	WHITE 700, 704, 510 704K, 708, 709, 710, 718, 750, 750T, 800, 802		15	F
201 (Stud.). 201 (Deluxe), 201C, 306, 306SC, 404, 404C, 404SC 406 509, 509C, 612, 612C, 614, 614C. 702, 702C, 805, 805C, 806, 806C.		15 17 15 19	P	548, 550 to 556 (1941-42). 513, 533 to 540 (1941-42). 525 to 528, 541 to 546 (1941-42)	150 135 150	19	PP	800, 802. 750T. 720, 720T, 722, 820 (12-volt) 805, 809, 810, 812, 818. WA14, WA18, WA20, WA22, WA28, WA34, WA114, WA119, WA120, WA122, WA126, WA134, WA2064, White Horse.	119 136 120 117	15 17 13 15	-
ODOE		25	P	LA FRANCE-REPUBLIC All Models (1941-42)	. 158	23	P			15	F
ODGE RC, RD, TC, TD, VC, WC Series. RE, VD, TE, WD Series RF, VF, WF, WFM Series RG, RH, TG, TH, VG, VH, WG, WH, WGM, WHM Series. RL, RK, RO, RP, TL, TK, VL, VK, WL, WK Series TLD, TKD, VLD, VKD, WLD, WKD.	95 105 119	15 15	P	MARMON HERRINGTON E, F, FF, H, HH, J, JJ, LD, LLD, M, MM, OT, OOT Series Medels C10-4, C20-4, C30-4, DSD100-4, DSD- 200-4, DSD200-6, DSD300-4, DSD-	. 100	17	P	WA16 WILLYS All Models		13	
RL, RK, RO, RP, TL, TK, VL, VK, WL, WK Series	136 153**	17 19 13	P	300-6 C40-4, C50-4, DSD400-4, DSD400-6, DSD500-4, DSD500-6.	120		P	* Each for 2 units. * Each N—Negative. P—Posit	for 4 u	nits.	

Nav.

STATE SIZE AND W

			SIZE I	RESTF	RICTIC	ONS (K)	GROSS	WEIGHT	(See	NOTE)		PRACT	ICAL GR	OSS WEI	GHT LIN	AITS (K)		(In th	ousands o	f pounds)
HI PLEET O	OPERATE ANN	ORS'	L	ENGT	н	23		(LEGAL	LIMITS)	(W	here No E	Distinction	is Made	Between I	Pneumatic	and Solid	f Tire Lim	its, Below	Limits A	pply to Bo	th)
STATE	Width(Inches)	Height (Feet)	Single Unit	Tractor Semi-Trailer	Other	Number of Trailers (Semi-Trailer=1/2)	Minimum Tandem Axle Spacing	Per Inch of Tire Width	Per Axie (1000 lb.)	4-Wheel Single Unit	6-Wheel Single Unit	4-Wh. Tractor 2-Wh. Semi-T.	4-Wh. Tractor 4-Wh. Semi-T.	6-Wh. Tractor 4-Wh. Semi-T.	4-Wh. Truck 4-Wh. Trailer	4-Wh. Truck 6-Wh. Trailer	6-Wh. Truck 4-Wh. Trailer	6-Wh. Truck 6-Wh. Trailer	4-Wh. Tractor 2-Wh. Semi-T. 4-Wh. Trailer	4-Wh. Tractor 4-Wh. Semi-T. 4-Wh. Trailer	6-Wh. Tractor 4-Wh. Semi-T. 6-Wh. Trailer
TV	96	121/2	30	40	NP	1/2	NS	600	16	30	30	30	30	30	NP	NP	NP	NP	NP	NP	NP
riz.	96	141/2	35	65	65	11/2	NS	700-P 500-8	18	22	34	40	44	56	44	56	56	68	62	88	90
rk.	98	121/2	35	45	45	1 or 1/2	40	Table	18	38	46.9-IW	53.9-IW	53.9-IW	53.9-IW	53.9-IW	53.9-IW	53.9-1W	53.9-IW	NP	NP	NP
al. XZ	96	131/2	35	60	60	NR	NS	NS-P 600-S	18	36	53.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
No. X	96 102 b	121/2	35	40	50	111/2	40	NS-P 500-S	18-I 16-J	24	34	50.4	50.4	50.4	48	58	58	63	63	63	63
mn. TZ	96 c 102	121/2	40	40	NP	1/2	NS	NS-P 800-S	NS(Z)	32-P 26-8	40-P 26-S	40-P 26-S	40-P 26-S	40-P 26-S	NP	NP	NP	NP	NP	NP	NP
el. Z	96	121/2	35	60	60	11/2	NS	700	18-P 16-S	26-P 22-S	36-PN 22-S	40-P 38-S	40-P 38-S	40-P 38-S	48-P 44-S	48-P 44-S	58-P 44-S	58-P 44-S	62-P 60-S	62-P 60-S	62-P 60-S
. c. VZ	106 a	121/2	33	33	50	NR	40	880	24.6 15.4 s	30.8-P	39.6-P	39.6-P	39.6-P	39.6-P	61.6-P	70.4-P	70.4-P	79.2-P	70.4-P	70.4-P	79.2-1
. Z	84	12	35	45	45	1 or ½	NS	550	16	16-PQ 8-S	16-PQ 8-S	19-PQ 9.5-S	40-PQ 11-S	40-PQ 11-S	40-PQ 11-S	40-PQ 11-S	40-PQ 11-S	40-PQ 11-S	NP	NP	NP
a. X	96	131/2	35	45	45	1 or ½	40	NS	18-I 16-J	36	46.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9	53.9
iaho V²	96	14	35	45	65	11/2	NS	800 °	18	28	42	42	56	60	56	68	68	68	68	68	68
TV1z linois	98	NS	35	35	40	11/2	40	800	16	24 E	40	40	40	40	56	56	72	72	72	72	72
Miana TX	98	12	38	40	40	11/2	40	800	18	36	47.6	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4	50.4
wa X	96	12	33	45	NP	1/2	40	NS	16-P 14-S	32-PW 28-S	35.2	40.6	40.6	40.6	NP	NP	NP	NP	NP	NP	NP
ansas TZ	96	121/2	35	35	45	1 or ½	40	NS	18-1 16-J	24 28 t	34	46.9	46.9	46.9	48	58	58	63	NP	NP	NP
. z	96	111/2	261/2	30	NP	1/2	NS	600	NR 18-1	18	18	18	18	18	NP	NP	NP	NP	NP	NP	NP
a	96	121/2	35	45	45	1 or ½	40	600	18-J	18	32	36	50	64	54	54	68	68	NP	NP	NP
faine X	96	121/2	40 h	40 h	40 h	1 or ½	NS	800	22-G 22.4	30	40	40	40	40	40	40	40	40	NP	NP	NP
ld.	96	NR	55	55	55	NR T	NS	600	18-e	44.8	58.4	65.2	65.2	65.2	65.2 31-P	65.2 31-P	65.2	65.2	65.2	65.2	65.2
fase.	102 b	NR	35 j	40	NS	1 or ½	NS	800	NR 18-P	28-S 36-PW	40 44-PW	40 54-PW	40 62-PW	40 70-PW	29-S 72-PW	29-S 80-PW	41 80-PW	41 88-PW	NP 90-PW	NP 98-PW	NP
flich.		121/2	35	50	50	11/2	NS	Table	16-S 18-P u	32-S 36-PW	39.2-S 42-PW	49-S 54-PW	55.2-S 68-PW	62.4-S 68-PW	64-S 42-PW	71.2-S	71.2-8 48-PW	78.4-S 48-PW	80-8	87.2-8	101.
4inn,	96	121/2		40	40	1 or ½		NR	10.8-8	21.6-8	25.2-\$	32.4-8	36-5	39.6-S	25.2-8	25.2-8	28.8-5	28.8-\$	NP	NP	NP
lias.	96	121/2		40	55	1 or ½	-	NS	18-J	22	30	30	30	30	30	30	30	30	NP	NP	NP
fa. XV ¹	96	121/2		40	40	1 or ½		600	16 18-P	24 36-P 32-S	24	38	38	38	48	48	48	48	NP	NP	NP
font. T		131/2	_	60	60	1 or ½	-	600	16-5		48.9	64.4	64.4	64.4	64.4	64.4	64.4	64.4	NP	NP	NP
ev.	96 NR	12 NR	35 NR	42 NR	45 NR		NS	NS 600	16	32-W	32	40	40	40	48	48	48	48	48	48	48
l. H.	96	NR	33	45	45	NR NR	42 NS	800	NR 18	25	38	38	38	38	50	63	63	76	63	63	78
. J.	98		35	45	50	1 or 1/2		Table	Table	30	40	60	60	60	60	60	60	60	40 NP	40 NP	40 NP
VIX	98 100 b			45	45	1 or 1/2		700-P 500-S	18-L 16-J	36-i 32-J	40.2-I 40.2-J	48.2-1 46.2-J	46.2-I 46.2-J	46.2-I 46.2-J	46.2-I 46.2-J	46.2-I 46.2-J	46.2-I 46.2-J	46.2-I 46.2-J	NP	NP	NP
. y. X	98 106 b		35	50	50	1 or 1/2		800-P 640-S	22.4-P 17.9-S	38-P 28.8-S	44-P 35.2-S	61.5-P 49.2-S	61.5-P 49.2-S	61.5-P 49.2-S	61.5-P 49.2-S	61.5-P 49.2-S	61.5-P 49.2-S	61.5-P 49.2-S	NP	NP	NP
i. G.	96		35	451	451	1 or 1/2		600	18-I 16-J	26 L		40	40	40	40	40	40	40	NP	NP	NP
. D. T	96		35	40	40	1 or 1/2		550	18 14-f	35	35	40	40	40 /	40	40	40	40	NP	NP	NP

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WEIGHT LIMITS

		SIZI	E RES	TRIC	TIONS	(K)		GROSS 1	WEIGHT	(See NO	TE) PRA	CTICAL (GROSS W	EIGHT I	LIMITS (K) (In th	ousands o	f pounds)		1	ANA
			L	ENGT	Н	E-0		(LEGAL	LIMITS)		(Where		etion is N imits, Belo				Solid Tire		194	O FLEET O	ERATORS ANNUA
STATE	Width (In Inches)	Height (In Feet)	Single Unit	Tractor Semi-Trailer	Other Combinations	Number of Trailers (Semi-Trailer=1/2)	Minimum Tandem Axle Spacing	Per Inch of Tire Width	Per Axie (1000 lb.)	4-Wheel Single Unit	6-Wheel Single Unit	4-Wh. Tractor 2-Wh. Semi-T.	4-Wh. Tractor 4-Wh. Semi-T.	6-Wh. Tractor 4-Wh. Semi-T.	4-Wh. Truck 4-Wh. Trailer	4-Wh. Truck 6-Wh. Trailer	6-Wh. Truck 4-Wh. Trailer	6-Wh. Truck 6-Wh. Trailer	4-Wh. Tractor 2-Wh. Semi-T. 4-Wh. Trailer	4-Wh. Tractor 4-Wh. Semi-T. 4-Wh. Trailer	6-Wh. Tractor 4-Wh. Semi-T. 6-Wh. Trailer
Ohio XZ	96	121/2	35	45	60	NR	NS	650	18-P 16-S	38-P 32-S	50.2-P 40.2-S	57.7-P 46.2-S	57.7-P 46.2-S	57.7-P 46.2-S	69-P 55.2-S	69-P 55.2-S	69-P 55.2-S	69-P 55.2-S	69-P 55.2-S	69-P 55.2-S	89-P 55.2-S
Okla.	96	121/2	45	45	45	11/2	NS	600	NS	24	24	47	47	47	47	47	47	47	47	47	47
Ore. VXZ	96	11	35	50	50	NR	40	600 q	18 w 16 x	34	46.9 w 46.9 x	54	54	54	54	54	54	54	54	54	54
Pa. Z	96	121/2	33	45	50	1 or ½	36	800	18 y	26 H	36 H	39	39	39	52	62	62	62	NP	NP	NP
R. I.	102	121/2	35	45	45	1 or ½	NS	800	22.4	32-P 28-S	40	49	46	46	64-P 56-S	72-P 68-S	72-P 68-S	80	NP	NP	NP
s. c. X	96	121/2	35	45	45	1 or ½	40	NR	18-I 16-J	25	25	40	40	40	40	40	40	40	NP	NP	NP
S. D. X	96	13	35	45	45	1 or ½	40	800	18-I 16-J	30	30	40	40	40	40	40	40	40	NP	NP	NP .
Tenn.	96	12	27	35	35	1 or ½	NS	NS	16	30	30	30	30	30	30	30	30	30	NP	NP	NP
Tex. X	96	121/2	35	45	45	1 or ½	40	650-I 600-J	18-I 16-J	36	38	38	38	38	38	38	38	38	NP	NP	NP
Utah XZ	96	141/2	45	60	60	1 or ½	NS	800	18-P 13.5-S	36-P 27-SW	53.9-P 40.4-S	64.4-P 48.3-S	64.4-P 48.3-S	84.4-P 48.3-S	64.4-P 48.3-S	64.4-P 48.3-S	64.4-P 48.3-S	64.4-P 48.3-S	NP	NP	NP
Vt. Z	96	12	50	50	50	1 or ½	40	600	NR	28 M 16	40 M 16	40 M 16	40 M 16	40 M 16	40 M 16	40 M 16	40 M 16	40 M 16	NP	NP	NP
⋆Va. VZ	96	121/2	33	45	45	1 or ½	40	650	16	24	35	35	35	35	35	35	35	35	NP	NP	NP
Wash. X	96	121/2	35	60	60	1 or ½	NS	500	18	28	34	69	69	69	69	69	69	69	NP	NP .	NP
W. Va.	96	121/2	35	45	45	NR	40	NS	18-PB 14-SB	36-PWB 28-SB	54-PWB 42-SB	54-PWB 42-SB	72-PWB 56-SB	90-PWB 70-SB	72-PWB 56-SB	90-PWB 70-SB	90-PWB 70-SB	102.4PB 81.9-SB	90-PWB 70-SB	102.4PB 81.9-SB	
Wisc. VZ	96 d	121/2	33 35	45	45	1 or ½	40	800	19-C 12-D	24-Ck 15-D	36-C 22.5-D	43-C 27-D	48-C 30-D	60-C 37.5-D	48-C 30-D	60-C 37.5-D	60-C 37.5-D	72-C 45-D	NP	NP	NP
Wyo. X	96	121/2	40	45	45	NR	NS	800	18	36	43.2	46.2	46.2	48.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2

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2-P

—See explanation in Note at right, a—if registered before 1932. b—At rear tires, when solids changed to pneumatics. e—Regulated "for hire" vehicles. d—104 inches for urban buses. e—if less than 50 inches apart f—if less than 58 feet apart. 9—Buses allowed 35 ft. length. b—Trailers are limited to 26 ft. i—Exclusive of bumpers. j—Buses permitted 35 feet. k—Special limitations, vehicles with 2 driving axies.

with 2 driving axles.

Graduated according to tire

width.

-13,000 lbs. on tandem axles
3 ft. 6 in. apart; applies June 1
to February 28; differs with

to February 200, season.

4-500 lbs. when total tires under 30 inches wide.

3-Permissible on axles spaced under 12 feet.

4-Dual tires 8 inches wide or

over.

-12,000 lbs. when axles spaced under 8 feet apart.

-Permissible weight on paved

Fermissing highways.

Permissible weight on unpaved

higneys.

—Permissible weight on unpaved highways.

—16,500 lbs. on rear, 8,000 en front axle of 6-wheelers.

—City of Clinton, Ill., limits truck gross weight to 12,000 lbs.

—Virginia—State Highway Commission may increase axle weight to 18,000 and gross weight of six-wheel vehicle or combinations from 35,000 to 40,000 lbs. on designated highways.

Table—There is a table of axle weights based upon tire widths, NP—Not permitted
NR—Not permitted
NR—Not permitted.

P—Paeumatic tires.

NOTE ON "W" AND SHADED SQUARES

Except when shown in squares shaded with parallel lines or when followed by the letter "W," the above gross weight limits are the limits fixed by state law.

When shown in shaded squares the above limits are computations made by the National Highway Users Conference to show what it considers to be practical gross weights where gross weights are arrived at by application of one of the formulae shown below under Footnote "X." In making these computations, wheel base was arrived at by deducting 8 ft. total over-hang front and rear from permissible overall length of unit or combination; tandem axles were considered to be a minimum permissible distance apart: H-20 bridge formulae was used in West Virginia. When actual over-hang is less than 8 ft. additional gross weight will be possible.

When followed by the letter "W," the limits shown are maximum possible weights where gross weight is determined by permissible axie weight. These limits are possible only when each axie carries a gross weight equal to the permissible axle limit as shown.

PL—Pay load.
S—Solid tires.
B—In "Industrial Areas"—varies for different "areas."
C—Permissible on "Class A" highways.
D—Permissible on "Class B" highways.
E—Trailers permitted 32,000 lbs.
G—Axles less than 10 ft. apart limited to 16,000 lbs.
H—Maximum shown—gross depends on chassis weight.
I—Permissible on balloon tires.
J—Permissible on other than balloon tires.

J—Permissible on other than balloon tires.
 K—May exceed on designated highways with permit.
 L—Buses permitted 22,500 maximum net weight.
 M—On State highways.
 N—40,000 lbs. with pneumatic tires, 3 axless, 2 hubs and brakes on each hub.
 Q—Different limits for "for hire" vehicles.

vehicles.

With the following exceptions full trailers are permitted the same gross weight as other single

Minn,—Trailers limited to 6,000 lbs. gross.

Nebr.—All trailers limited to 16,000 lbs. gross.

N. Dak.—Trailers, 35,000 lbs. Weight of trailers is limited by axie limitations and formula, in states determining gross weight by formula.

V—Solid tires prohibited except on property carrying vehicles operating at 10 miles per hour or less.

V2—Solid tires limited to 20 miles per hour under 10,000 lbs., and to 12 miles per hour over 10,000 lbs.

to 12 miles per nour over 10,000 lbs.

W—See Note above.

W!—Maximum gross when all axles carry maximum load—See "Note."

Ala., Iowa, Conn., Ky.—Full trailers prohibited. Ili—All trailers limited to 32,000 lbs. gross.

Mass.—Trailers limited to 1,000 lbs. capacity.

Minn.—Trailers limited to 6,000 lbs. gross.

Nebr.—All trailers limited to 16,000 lbs. gross.

N. Dak.—Trailers limited to 16,000 lbs. gross.

N. Dak.—Trailers limited to 16,000 lbs. gross.

N. Dak.—Trailers, 35,000 lbs. weight by formula. in states determining gross weight by formula.

--Solid tires prohibited.

--Solid tires prohibited except on property carrying vehicles operating at 10 miles per hour or less.

--Solid tires limited to 20 miles per hour under 10,000 lbs., and to 12 miles per hour or less.

N.—See Note above.

M.—See Note above.

M.—Maximum gross when all axles carry maximum load—See "Note."

NFERENCE. National Press Bidge. Washing

-700 (L plus 40) semi-Colo.

Colo.—700 (L plus 40) semitrailers.

Ga.—700 (L plus 40) any unit or combination.

Ind.—700 (L plus 40) two or more consecutive axles and any unit or combination.

Ind.—700 (L plus 53-½) any unit or combination; vehicle registered in Iowa permitted 17,000 lbs. axle weight and gross of 28,000 lbs. plus 500 lbs. per foot of axle spacing.

Kans.—700 (L plus 40) only applies to combinations.

Md.—750 (L plus 40) any unit or combination.

Mont.—650 (L plus 40) for axle spacing to 20 ft. and 700 (L plus 40) any unit or combination.

N. Y.—750 (L plus 40) two or more consecutive axles and any unit or combination.

N. Y.—750 (L plus 40) three or more consecutive axles and any unit or combination.

Ohie—750 (L plus 40) 3 or more axles.

Ohie—750 (L plus 40) any unit or exceptions and any unit or combination.

Onto—750 (L plus 40) 3 or more axies.

Ore.—700 (L plus 40) any unit er combination.

S. C.—700 (L plus 40) any unit or combination.

S. D.—600 (L plus 40) any unit

or combination. Texas-700 (L plus 40) any unit

Texas—700 (L plus 40) any unit or combination.

Utah—700 (L plus 40) any unit or combination.

Wash—750 (L plus 40) any unit or combination if axle spacing over 18 feet; 650 (L plus 40) if axle spacing 18 feet or less.

W. Va.—1330-1000-670 (L plus 40) applies to highways dependent on type of bridges thereon.

Wys.—600 (L plus 40) two or more consecutive axles and any unit or combination.

NATIONAL HIGHWAY USERS CONFERENCE, National Press Bldg., Washington, D. C. Corrected to March 16, 1943, Copyright 1943

GROSS WEIGHTS COMPUTED BY FORMULAS

Computation of Gross Weights according to formulas, based on distance (in feet) between first and last axles, for States Identified by State Size & Weight Limits chart by Footnote "X." It should be remembered that the figures in each column represent only a mathematical extension and are governed by Legal Overall Length Limits for single units and combinations of particular states. Also, that formula computations are superseded in some instances by specific limits given in the chart.

"[" (See	lowa	Ohio ⁷	New Mexico South Dakota Wyoming	Arkansas ¹ Montana ³ Washington ⁶	West Virginia (H-10 Bridges)	Arkansas, ² California ² ,Colorado, Georgia, Indiana Kansas, Montana ⁴ ,Oregon, S. Car., Texas, Utah	Maryland New York Ohio ⁸ Washington ⁵	West Virginia (H-15 Bridges)	West Virginia (H-20 Bridges)	California ¹⁰	California ¹¹	
Note Below)	450 (L + 53½)	18000 + (L + 40)	600 (L + 40)	650 (L + 40)	670 (L + 40)	700 (L + 40)	750 (L + 40) ⁸	1000 (L + 40)	1330 (L + 40)	800 (L + 40)	850 (L + 40)	(See Note Below)
10 ft. 11 12 13 14	28500 lbs. 28950 29400 29850 30300	33000 lbs. 34500 36000 max.	30000 lbs. 30600 31200 31800 32400	32500 lbs. 33150 33800 34450 35100	33500 lbs. 34170 34840 35510 36180	35000 lbs. 35700 36400 37100 37800	37500 lbs. 38250 39000 39750 40500	50000 lbs. 51000 52000 53000 54000	66500 lbs. 67830 69160 70490 71820	43200	Ibs.	10 ft. 11 12 13 14
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40 41 42 43 44	42000 42450 42900 43350 43800	****	48000 48600 49200 49800 50400	52000 52650 53300 53950 54600	53600 54270 54940 55610 56280	56000 56700 57400 58100 58800	60000 60750 61500 62250 63000	80000 81000 82000 83000 84000	106400 107730 109060 110390 111720	64000 64800 65600 66400 67200	68000 max.	40 41 42 43 44
45 46 47 48 49	44250	* * * * * * * * * * * * * * * * * * *	51000	55250 55900 56550 57200 57850	56950	59500 60200 60900 61600 62300	63750 64500 65250 86000 88750	85000	113050	68000 68800 69600 70400 71200		45 46 47 48 49
50 51 52 53 54	*****	*****		58500 59150 59800 60450 61100	*****	63000 63700 64400 65100 65800	67500 68250 69000 69750 70500			72000 72800 73600 74400 75200		50 51 52 53 54

"L"—distance in feet between first and last axles of group of axles considered.

1. Arkansas vehicles with axles spaced not more than 7 ft. apart.

2. Arkansas vehicles with axles spaced over 7 ft. apart.

3. Montana vehicles with axles spaced not more than 20 ft. apart.

4. Montana vehicles with axles spaced over 20 ft. apart.

5. Washington vehicles with axles spaced over 18 ft. or less.

7. Ohio—applies to two successive axles only; see footnote 8.

8. Ohio—applies to twee or more axles. In Ohio the formula which applies to these cases is "30,000 plus (length times 750)", which results in the same figures as used above for "750 times (length plus 40)". See footnote.

This applies (up to 18 feet) to any two or more axies on any vehicle or combination which was first registered on or after Jan. 1, 1942.

This applies (1) to any vehicle or combination with total wheel base exceeding 18 ft. which was first registered on or after Jan. 1, 1942.

(2) to any vehicle or combination, which was first registered prior to Jan. 1, 1942, having a group of two or more axies, where the distance between the first and last axies of the group is between 14 and 18 ft., inclusive. Terminates Jan. 1, 1952.

This applies to any vehicle or combination first registered prior to Jan 1, 1942, where the total wheel base is between 25 and 45 ft., inclusive. Maximum 88000 lbs. Terminates Jan. 1, 1952.

RESTRICTIONS PECULIAR TO CERTAIN

- Maximum gross weights subject to maximum capacity based on tire sizes. Tolerance of 71/2 espacity based on tire sizes. Tolerance of 7½ per cent is allowed above allowances listed per tire sizes shown in Table (NHUC Size & Weight Book), but maximum axle weight is limited to 16,000 lbs. Vehicle weight allowances shown in State Size & Weight Limits chart are calculated on the basis of 9,000 lbs. on the front axle and 16,000 lbs. on all others. Single unit buses allowed axle weight of 17,600 lbs. if equipped with dual mounted low pressure tires not less in size than 10,50 x 22 in.
- 18,000 lbs. per axle permitted on vehicles, registered prior to 1930 (11,000 per wheel), until Dec. 31, 1942. CALIF.
- Not more than 80 per cent of vehicle gross on any one axis.
- any one axie.
 2,000 lbs. additional allowed on three-axied
 trucks with pneumatic tires and two hubs and
 brakes on each hub.
 Solid tires, when permitted, allowed 10 per
 cent less than pneumatics.
 Private vehicles allowed 16,000 lbs. with power
 brakes and six tires.
 For hire vehicles: (Solid tires forbidden.)
 Trucks allowed 24,000 lbs. with power brakes
 and 12,000 lbs. unladen. DELA.

- Tractor-semi-trailer allowed 40,000 lbs. if both vehicles have power brakes.

 Four-wheeled trailer allowed 20,000 lbs. with
- Four-wheeled trailer allowed 20,000 lbs. with power brakes and over-sized tires. No unit may carry a payload over 12,000 lbs. Trucks and tractor-semi-trailers permitted 16,000 lbs. per axie, 28,000 lbs. gross weight and 33 feet length (tractor-semi-trailers) during National Emergency. When axies spaced under 8 ft. apart restricted to 12,000 lbs. on pneumatics and 7,200 lbs. on solid tires. Special size and weight limitations apply in cities of 75,000 population or over. Vehicles in use before Jan. 1, 1942, until Aug. 13, 1947, allowed—

 Pneumatic Solid KY.....
- MINN...
- оню....

 - ORE....
- Six-wheelers must have minimum axle spacin of 36 in. between the two rear axles. Buse operating within municipalities exempted from 18,000 lbs. axle and 26,000 lbs. gross limits.

77

LIGHTS

CLEARANCE

- UTAH... Gross weight also limited to three times unladen weight.
- Inden weight.
 The greatest allowances shown in State Size & Weight Limit chart are permitted on state highways, medium allowances are the maxima permitted on state-aid highways, and the lowest allowances are the maxima permitted on other highways.
 Two-axted vahicles with allowances.
- VA..... Two-axied vehicles with six-wheels permitted 32,000 lbs, gross.
- 32,000 lbs. gross.

 W.VA... No unit may carry a load more than 100 per cent greater than its registered capacity if registered for not over two tons; or more than 50 per cent greater if registered for over two but not over four tons; or more than 25 per cent greater if registered for over four tons.

 WISC... Four-wheeled vehicles with two driving axles spaced 8 ft. or more apart permitted gross weight of 28,000 lbs.; if gross weight oxceeds 24,000 lbs., the axle weight must not exceed 16,000 lbs. if equipped with high pressure pneumatic tires or 18,000 lbs. If equipped with balloon or low pressure tires.

SAFETY EQUIPMENT

REGULATIONS

STATE

1943 FLEET OPERATORS'

route
CMV—Commercial Motor Vehicles
Cert & Perm—Certificated and
Permit Carriers
Corn—Combinations
Corr—Corner
E—Each 6—Carriers 66—Common Carriers regular A—Amber 8—Blue 8 & Bu—Buses GENERAL

KEY TO SYMBOLS—(State Commission Rulings Are Given in Italics)

Enc—Enclosed
F—Front and Rear F—Front and Rear F—Tront and Rear F—Trong F—T

TC-Top		UC-Upper UP-Upper UP-	Y—Yellow
rified	ermit Car Carriers r Carriers	oclamation rrvice Transporters	Trailer

C—"Adequate to control the movement of and to stop and to hold such vehicle, including two separate means of applying the brakes, separate means of applying the brakes." "enficient to control"; "good and sufficient"; "enficient"; "serviceshod and sufficient"; "enficient"; "serviceshod supported in unit becomes disconnected brakes lock automatically.

(5)—Air power or vacuum booster brakes (or electric in Fla. and Mitch, and Wis.).

*—Where no designation of the specific class (i.e., trailer or semitrailer) is made, both classes must be understood.

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CLEARANCE LIGHTS 72 DIRECTIONAL SIGNALS 71 FLARES AND FUSEES 71 INSURANCE 71 REFLECTORS 72 STOPLIGHTS 71

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DIRECTIONAL SIGNALS & STOPLIGHT

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DD-When	make

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Special Provisions For Trailers and Semi-Trailers		Must Be Used By	É		Dov Ved	noe	ilidiea		ved	э	Special Provisions For Trailers and Semi-Trailers	ilers	Must Be Used By	N N	pa	bev	nge	illidisa	
Type Re- quired			per	Requi	ordqA	Compi	Finan	Requi	Jan M orqqA	TAT8	Applicable To *	Type Re- quired		per	цпвэн	Must	Compi	Financ	Must i
8		B. T. TTr	*3	No	No	_	4	B, T	No	Nebr.			T, B, Comb	69	Yes DD	Yes	No	Yes BYe	BYeadD Yes
	1	B, T, CMV	64	Yes DD	Yes	07	No	Yes DD	Yes	Nev.	Over 3000 lb. gross				No	No	No	No	
7(9)	1	MC	83	Yes DD	Yes	No	Yes	Yes DD	Yes	N. H.	Over 3000 lb. gross		T, Tr, B	64	No	No	No	Yes	
		T	60	Yes DD	Yes	No	No X	Yes DD	Yes	Z.S.	Over 3000 lb. gross	(I)I	B, CMV over 21/4 Ton	60	Yes DD	Yes	No	Yes B-Ye	B-Yes DD Yes
(A)L	_	T over 2 Ton, TTr	09	Yes DD	Yes	No	Yes	Yes DD	Yes	N. W.	Over 1500 lb. net load (cap.)	(3)T	T over ton	00	Yes DD	Yes	No	No Yes	DD Yes
(I)F	-	T, B	60	Yes DD	Yes	No	Yes	Yes DD	Yes	N. Y.	Over 1000 lb. net	(2)	T over 2t, B, Comb	64	Yes DD	Yes	No	Yes B	No
T		PSMV, CMV ov. 1t Comb	NB	Yes DD	Yes	No	Yes	Yes DD	Yes	N. C.	2 tone or over	(A)L	T, Trl, SemiT	NB	Yes DD	Yes	No	Yes MC	IC Yes Yes
7		T over 80 in. wide	60	Yes DD	Yes	No		Yes DD	Yes	N. D.					Yes DD	Yes	No	Ves Ves	Vos DD Vos
	-		1	- 1	-	-	-1	Yes DD	Yes	Ohio	2000 lbs. or more	(I)L	B, T, Tr	00	No	No	No	-	-
1(1)	-	T, B, TTr	0	al	-	+	+	Yes	No	Okla.					No	No	No.	No	T
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3 3	1	:18	0 0		8 3	+	1	Od ook	8 8	Penna.	Over 1000 lb. net	(1)T	B,CMV,Comb, over 51/5 t	00	Yes DD	Yes	No	Yes Yes	DD Yes
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212	100	T. D. LIE	1		No	+	-	Yes	Yes	2 2 2	SentT over 114 ton, Trl, Over 3000 lbs, gross	(I)L	T, Trl, SemiT, MC	69	Yes DD	Yes	No	No Yes	Yes DD Yes
	1	MC/T	63	No	-	No	Yes			8. D.		(1)F	T, Tr Comb	80	Yes DD	Yes	No	Yes Yes	Yes DD Yes
H		T	60	No	No	No	Yes T	T, B	No	Tenn.	SemiTrailers, ton or ov. gr.	(1).	B T. T.T.		No	2	N N	No.	No.
3	(3)L	T, B, Comb	63	Yes DD	Yes	No 1	No Y	Yes DD	Yes	Tevos			CMCV Comb B	0	No.	2	+	+	T
		MC	90	No	No	No	Yes B		No	1	Ocean SAMO Ibe	2000	av, come,			2	+	-	
		CMV over 2T, B	63	No	No	No	Yes B		No	1	Over 3000 tue.	7(1)	B, I, 11F	0	T CE TOT	rea	No	No I. I	DD DD
		CMV over 5000 lbs.	60	Yes DD	Yes	Yes	Yes B	BYesDD	No	Vt.			B, T, Comb	69	No	No	No	Yes	
2	(1)T	MC	60	Yes DD	Yes	No	Yes	Yes DD	No	Va.	Over 2 tons	r	B, T	œ	Yes DD	Yes	No	Yes Yes	Yes DD Yes
H		T, B, Tr	60	Yes DD	Yes	No	Yes	Yes DD	Yes	Wash.	Over ton gross	L	T, CMV, Comb	69	Yes DD	Yes	No	Yes Yes	DD Yes
C	(I)L	T, B	NB	Yes DD	Yes	No	No X	Yes DD	Yes	W. Va.	Over 3000 lbs. gross	(I)T			No	No	No	Yes	
				Yes DD	Yes	No	No X	Yes DD	Yes	Wisc.	Over 3000 lbs, gross	(A)L	T, Comb	1or2	No	No	No	Yes	
				No	No	No	No	1		Wyo.	Over 3000 lbs, gross	T(1)	T, Comb, B	69	Yes DD	Yes	No	No Yes	Tes DD Tes

SAFETY EQUIPMENT REGULATIONS CONTINUED ON NEXT PAGE

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REGULATIONS (CONTINUED) EQUIPMENT SAFETY

KEY TO SYMBOLS—(State Commission Rulings Are Given in Italics)

(3)—Except buses operated wholly in municipalities with illuminated interiors. (2)-Except passenger common carrier. For explanation of Alphabetical abbreviations, see page 69.

GENERAL

(4)—Except small two-wheeled trailers of 1,000 pounds or less expansity towed closely behind motor vehicle (and semi-trailers towed alone in New Hampshire and West Virginia), whose length insulative towing vehicle is not over 30 ft.

(1)—Except road roller, road machinery or farm tractor.

CLEARANCE LIGHTS

HEFERENCE ANNUAL

(5)—Or which extends 40° or more to the left of the center of the chassis.

(6)—Over 7 ft. in height or extremes 4 inches beyond the front fender extremes 4.

(7)—Over 8 ft. high.
(8)—3 tons or over.
(9)—Trucks over 2 tons.
(10)—Trains under Special Permit.
(11)—At least 24 in. above lamp contens.

+-Identification lamps, spaced evenly 6"; .-Reflectors may be substituted. 12" apart.

:-Green to right, red to left. Set by Commissioner.

.-- May use in lieu of clearance lights. REFLECTORS

(1)-Except road-roller, road machinery, or :-Grouped as identification lighte +-May use in lieu of rear lights.

(2)—Or whose load or any part extends 40 in. or more to the left of the center of the chassis. farm tractor.

(3)-Except private passenger motor vehicles.

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New York Sensor New York S		Tr. SemiT over 3000 lbs. gross. Trl. 3000 lbs. or less.	::	~::	: :	: 69						24-4	9 9	: 20-		_	1	De se I.C.C.	: :	:	:	-	: :			1-12	: :	ac	: :	: : :	8	.
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Column C		Tr. Semil over 3000 Ibs. gross Trl. 3000 lbs. or less	::	<u>:</u> :	: :	: 01		: #		<u> </u>		24.2	: :	: :	: :		C	(6)	200	1	04.0	019	I S	-	10	EN	::	::	500 5	500	1:00	1
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Part 2000 Part		B, T, Tri & SemiT over	:	:	:		.:	מ	:	_		24-6	:	388	:	:	-	icles (1)		:	-	*		-	-	-	:	:	200	000	-	.
B. CMV, Trl. SemiT. 20		3000 lbs. gross Tri, 3000 lbs. or less		30	_			:R	.:			24-6	::	5000	::		In addition	1.C.C. requiremen	ts for	Emerg	ified to	y the	I.C.C.		tables	for tru	cks in Section	tables for trucks in interstate according to Section 3.349 of	e commerce, of its Regul	62	the fol-	<u>.</u>
Particle Particle	1	B, CMV, Trl, SemiT	:	1	-	-		MA P	1:	1	-	-	:	1	1	1	On every	bus, truck or tra	ctor the	ere sh	all be	l in	cted an		by t	he Und	erwrite		Laboratories. Inc under	. Inc.	pun .	i.
Now May Tri, Beauff Now Tay Tri, Beauff Now Tay Tri, Beauff Now May Tri, Beauff Now May Tri, Beauff Now Tay Tri, Beauff Now May Tri, Beauff Now Tay Tri, Beauff Now Tri, Beauff	I	. 1 .	: :8	1	+	1.		1	1:	1	+	-	1	1	1	1		Minimum size: 1	agent	which	does tetra-	not n	e tyne:	2 lb. c	om fre	from freezing, proper carbon dioxide type.	type.	filled	nd seci	irely i	mount	B
Name	2			1	-	:	1	+	-	+	:	444	-	: 20-	+	1	(b) One	ed lantern when	project	ng loa	ds ar	e carri	ed.									
Nav. Tri, Benrit. 2		MC GMV (3)			::	_		祖出	.83		:24	24 :	::	200	::	; :		ed cloth hag, not ast one spare ele	ctric h	uth fo	r each	duare,	when p	rojecting	p used	for a	ried.	carried. any lighting devices required by the	ices req	luired	by ti	9
NMV, Trl, BemlT So 2		lbs. gross	:	:	:	:1	.	:	144			:	:	:	:	.1	gulations.	of one coars elec	hrie fu	90 0	arh k	ne pui	d cize	pes								
MV (1) 80 2 4 A R E F/R Three flares or three flares	D	- 1	:	:	:	-	:	B	-	-	:	-	:	200	:	× 1		of tire chains.		5												
Name	nn	MV (1)	80	:	C4 #	10	1	H A		M F	F/F	:	: 00	: 000	:	I	(g) Three	5 6	red 6	lectric	lante	chad a	ach fla	re (liqui	d-burn 500 f	ing poi	t torch)		or red electric shall	tric s		be at
MV. Tril. Semit 20 1 4 G R 3-E F/R 24-25 60 500 Y Each flare (pot torch) shall he reprined in any air velocities from the large from the principle of the		- 1	-	: 5	1	-		1 2	4	1 8	PIR	÷	2009	1	1	T	ht.	5					3									
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CMV_TRL Beml, NMV 30 1 4 Y B L. E. F/R F/R 24-60 500 Y Each fisse stall be made in a set of three red-burning at least three red-burnin					leg us	ate "	-						:	:	:	الدا	king, and sha	all he carried in	meta	rack	6	ж.							-			
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MV Tol. Benut Image: Comb b.	Va	1	:	:	:		:	:	:	:	:	:	:	:	:	· pe				rualice in.	MILI	sheer	Cations	חוופ	Dureau	5	riosives,		and so marked,		and shall	
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20	0	CMV, Tri, SemiT. Vehioles (i).			-			EE :	: :81		:::8	:::	500				lieu of such	flares and fusees, st two red cloth		red e	ectric than	lamter 12 ir	ns shal	be carried with s	ied.	fs.	fino an	Baccali	lases II		Tall I	2
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DRIVERS' HOURS

OF SERVICE



REGULATIONS AS OF JANUARY 1, 1943

		LIMI	T OF	HOURS ON DUT	Y
State	Vehicles Affected	When Consecu- tive	Min. Hrs. Off Duty	When Not Consecutive (Hours (Period allowed) in hrs.)	Min. Hrs. Off Duty
Ala	Common & Contract Carriers	8	8	8 in 12	8
Ariz	Motor & Private Property Carriers	10	8	10 in 24	8
Ark	Common and Contract Carriors*	12	8	14(b) in 24	8
Calif	Common Carriers	Same		C. C. Regulations	Below
Onlo	Other Property Transporters*	12	8	12 in 15	8
Cele Cenn	All Carriers*. Commercial & Public Service	40	17	10 in 24	8
Dela	Commercial (trucks and buses)	12	8 2	16(e) in 24 16 in 24	10
D. C.	For-Hire Buses Over Regular Routes	12	2	16 in 24	8
Fla	For-Hire	Same	as I.	C. C. Regulations	Below
Ga	For-Hire Carriers	10	10	o. o. riegulations	is the same
Idaho	For-Hire Carriers Transportation Companies (Common)	Same		C. C. Regulations	Below
III	Trucks			/12° in 24	8
				15 in 24	8
Ind	Common & Contract	8(h)	5.5	14 in 24	* 5
lowa	For-Hire*	12	10	12 in 24	8
Kans	Common, Contract & Private Carriers.			16 in 24	10/0
Ку	Same (sleeper cabs)	38 12	8	10(0) in 24	12(f) 10
La		12	NO	16(e) in 24 LIMITATIONS	10
Me	Property For-Hire	12	8	16(e) in 24	10
Md	rioparty carried		NO	LIMITATIONS	
Mass.	Property Transporters. Common & Contract Carriers*	12	8	16(e) in 24	10
Mich.	Common & Contract Carriers*	12	10	12 in 24	8
	Trucks	12(h)	10	12 in 14	10
Minn.	For-Hire Carriers	Same	as I.	C. C. Regulations	Below
Miss	Motor Carriers	Same		C. C. Regulations	Balow
Mo Mont	All Carriers* Motor Carriers* All Motor Vehicle Operators	10	10	10	10
mont.	All Motor Vehicle Countries	4.0		8 in 24 8 in 24	8
Nob	Motor Carriers	4.4		12 in 24	
Nev	For-Hire*	12		12 in 15	8
N. H.	For-Hire Trucks	12	8	16(e) in 24	10
N. J.	For-Hire Trucks Commercial Trucks & Buses	12(i)	8	12 in 16(i)	8
N. M.	ror-rure	10	8	16(e) in 24	44.
N. Y	Trucks & Buses	10(k)	8	10 in 14	- 8
N. C	For-Hire Carriers	Same		C. C. Regulations	Below
N. D Ohio	Common & Contract Carriers	10	10	10 in 24	10
Okla.	Truck Drivers	14	8	14 in 24	8
Ore	Motor Carriers* (including private) All Motor Carriers*	12	10	12 in 24	10
Penn	Motor Carriers	Same		C. C. Regulations	Below
R. L	Merchandise or Public Service	12	8	16(e) in 24	10
S. C	Motor Carriers	Same	as I.	C. C. Regulations	Below
S. D.	Motor Carriers. Motor Carriers*	12	12	12(e) in 24	8
Tenn	Motor Carriers*			12 in 24	8
				(63 driving hrs.	in any
Tex	Mater Contact Tours	10		7-day period.)	8
Utah	Motor Carrier Trucks	10	8	10 in 24	-
Vt	All Motor Carriers	0	NO	10(j) in 24 LIMITATIONS	
Va	Common Carriers*		NO	8 in 24	10
		1		13 in 24	
Wash.	Motor Vehicles* Motor Freight Carriers	10	8	10 in 24	8
W. Va.			NO	LIMITATIONS	
Wis	Motor Carriers	Same	as I.	C. C. Regulations	Below
Wyo	Motor Carriers	10	8	14 in 24	10
Federal	Interstate Common Contract and			10/m) in 04	
(ICC)	Private Carriers			10(m) in 24	8

				FACI	NG	S	PR	(Lb.)					
CLUTCH MAKE AND MODEL	Rated Torque Capacity (Lb. Ft.)	Туре	Outside Diameter (Inches)	Inside Diameter (Inches)	Number of Facings	Total Area (One Facing)	Total Spring Pressure	Total on Friction Face	Per Sq. In. of Friction Surface	Overall Outside Diameter (In.)	Means of Adjustment	Bell Housing (S. A. E. No.)	Weight, Complete (Lb.)
BORG & BECK 10A7 11A6 12Q 13O 14Q	150 180 220 260 375	SP SP	10 11 11 ⁷ / ₈ 12 ⁷ / ₈ 13 ⁷ / ₈	6 6½ 7¼ 7¼ 7¼	2 2 2 2 2 2	50.0 65.5 69.5 89.0 110.0	340 425	1410 1770 1900 2250 2420	28.2 26.3 26.0 25.3 22.0	123/8 133/8 123/4 133/4 143/4	None None CPP CPP CPP	5+ 4+ 4+ 3+ 3+	183 26 343 41 553
BROWN-LIPE 13-S.P. 13-Two-plate. 14-S.P. 14-Two-plate.		SP SP SP	127/8 13 133/4 133/4	78%	2	88.0 90.0 108.0 105.7	500	2240 2750 2940 2750	26.0 30.6 27.8 28.0	145/6 151/2 151/2 161/4	TR TR TR TR	3+ 3+ 3+ 2+	45 84 58 96
CHEVROLET 1941-1/2 Ton 1941-1/4-11/2 T	200 200	SP	9½ 10¾	61/8	2 2	35.9 52.3	(a) (b)	(a) (b)			RC		16. 21.
LIPE, W. C. Z34-S Z30-S Z32-S Z31-S Z42-S Z40-S Z37-S Z54-S Z40-SX Z38-S	214 270 340 422 431 566 568 700 708 1100	SP SP SP SP SP DP DP SP	117/6 127/8 137/6 137/6 15 15 127/6 137/8 15	71/4 71/4 8 8 71/4 8	222442	69.5 89.0 110.0 110.0 128.0 128.0 104.0 128.0 115.0	490 490 575 480 480 630	1794 2132 2556 3212 3020 3870 2256 2535 5925 3868	25.8 24.0 23.2 28.9	135/8 145/8 155/8 155/8	Shim Shim Shim Shim Shim Shim Shim Shim	3+ 3+ 3+ 3+	38 473 573 60 73 74 903 97. 74
LONG 8½CB. 8CF. 9CF. 9%CF 10CF. 11CF. 29A 12CB. 31A. 13-6. 14B. 15-4. 34BD. 17. 215.	75 100 135 150 165 195 225 250 300 350 325 500 600 1200	SP SP SP SP SP SP SP SP SP SP SP SP SP S	81/5 77/8 91/2 10 11 12 11 13/4 15/3 13/4 16/4 15/4 16/4	5% 6 6 6 6 6 6 7	22222424242424	28.5 28.1 37.5 42.6 50.2 61.8 44.0 74.6 61.7 107.0 107.0 125.0 141.8 125.0 141.8	Var Var Var Var Var Var Var Var Var Var	Var Var Var Var Var Var Var Var Var Var	Var Var Var Var Var Var	944 10% 11 11½ 12 13 11¼ 145%	None None None None None None None None	6++ 5++ 5++ 4++ 3+	103 9 143 153 203 233 33 373 44 62 58 64 100 96 120
ROCKFORD 6TS 8-11 9-RM 83%-RM 9-11 10-RM 9-TT 11-TT 11-TT 12-TT 12-TT 14-TT 14-TT 15-O 15-TT	35 110 115 120 192 175 210 250 310 320 347 425 590 600 920 1980	\$	677% 87% 87% 87% 97% 107% 117% 117% 1137% 15 15	61/8 67/8 67/8 67/8 8 8 8 8	2222	36.0 30.0 36.0 42.0	720 750 822 930 1020 1350 1500 1665 1740 1665 2175 2480 2625 2980 3150	330 720 750 822 930 1020 1350 1665 1740 1665 2175 2460 2625 2880 3150 3360	27.6 20.8 27.0 25.9 24.3 36.0 32.0 30.0 31.8 22.5 29.3 24.3 26.0 22.8	9 % 11 % 10 % 10 % 11 % 11 % 12 % 13 % 15 % 15 % 15 % 17 %	None None None None None None None None	4, 5 2,3,4,5 2,3,4,5 2,3,4,5 2,3,4,5 2,3,4 2,3,4 1,2,3 1,2,3 1,2,3 0,00	31 11 13 91 14 151 17 201 22 29 27 421 50 48 83 861 422

(60 hrs. in any week of 168 consecutive hours or 70 hours in any 192 consecu-tive hours.)

^{*—}Limit is actual driving hours.

(b)—If 2 hours' rest period provided.

(d)—Nine hours at end of two 7-hour periods with one hour rest intervening.

(e)—No period off duty shall be deemed to break the continuity of service unless it be for at least 3 hours.

(f)—Or one-third of the time on duty.

(h)—No period off duty shall be deemed to break the continuity of service unless it be for not less than 2 hours at a place where food and lodging may be secured.

⁽i)—Time taken for meals not counted in time on duty.
(j)—May be spread over 15 hours provided time between runs is sufficient to permit rest and relaxation.
(k)—includes time for meals.
(i)—Seventy-two hours in 7-day period or 96 hours in such period if a sleeper cab.
(m)—Twelse hours in aggregate permitted.

steeper cap.

(m)—Twelve hours in aggregate permitted in adverse weather and traffic conditions, provided the Bureau of Motor Carriers is notified.

^{+—}And larger

1—Spicer Mfg. Co.
(a)—1100-1225 lbs.
(b)—1200-1257 lbs.
(c)—15.3 to 17.1 lbs.
(d)—11.5 to 11.9 lbs.

CPP—Cam on Pressure Plate
DP—Double Plate, Dry
NC—Nuts on Cover Plate
RC—Linkage between Release and Clutch Peda
SP—Single Plate, Dry—Spec—Special
TR—Threaded ring—Var—Varies



1943 FLEET OPERATORS' REFERENCE ANNUAL

COMMERCIAL CAR JOURNAL COMPONENT PARTS SPECIFICATION TABLE MOTOR TRUCK

Upon innumerable occasions fleet maintenance men are re-quired to identify the make and model number of certain truck

(TP)

component parts such as the carburetor, rear axle, etc., for replacement purposes. This table has been prepared to supply truck owners with such data to expedite replacement parts procurement.

The complete listing covers such accessories of the power

A Compilation of Standard Model Data Submitted by Truck Manufacturers

KEY TO ABBREVIATIONS AND REFERENCES

GENERAL ABBREVIATIONS

+-Brakes installed by rear axle manufacturer +-1700 intermediate shaft; 1600 front and

rear shaft

##4-1700 shaft from transmission to transfer
case, 1600 front shaft, 1700 rear shaft
###4-1700 main shaft, 1700 front and rear *-1600 shaft with 1% in. taper steady bear-

"=—1600 front shaft, 1700 rear shaft
"**—1700 front shaft, 1800 rear shaft
"**—1700 front shaft, 1800 rear shaft
fransfer case, 1500 front and rear shaft
\$—1500 intermediate shaft, 1600 front shaft,
\$\$\$-1600 intermediate shaft, 1700 front and

sps. - rear snatt
shaft, 1800 rear shaft
——1700 main shaft, 1600 intermediate shaft
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(23)—Hercules WXC3 or Waukesha MZR (24)—Hercules RXLD or Waukesha SRKR (26)—5.4830 with 2.483 auxillary (27)—1.560 front, 1600 rear (28)—1400 front, 1600 rear axle (29)—1500 front, rear and intermediate axle (30)—1600 front and rear, 1700 intermediate

Com—Commercial type
(c.o.c.)—Cab-over-engine
(D)—Diesel engine equipped
(c.u.s.)—Encine under seat
NS—Not standard
(T)—Tractor

Day—Dayton Steel Foundry Co.

D-8—Dayton cast sprocket and Budd disc

MAKES OF UNITS

Optional
Del.—De Luxe Products Corp.
Del.—De Luck Products Corp.
DF.—Duc-Rio
Don—Lonaldson Co.
DP.—De Luxe or Purelator
DR.—Delco-Remy Division
D-S.—Delco-Remy and Scintilla

A-A-Air Aufo
A-B-Atwood with Borg & Beek dise
AC-AC Spark Plug Division
A-Electric Auto-Lite Co.
A-CH-Auto-Lite or Champion
AM-Air-Mase Corp.
And Auto-Lite or U. S. L.
Aup-Auto-Lite or U. S. L.

B&B—Borg & Beck Division
B-D—Budd or Dayton
Both—Budd wheel Co.
Ben—Bendix Products Division
B.K—Bendix Products Division
B.K—Bendix B-K (Bendix Products Division)
B.K—Bordor Bree, Spierr Mfz. Corp.)
B.H—Brown—Lipe (Spierr Mfz. Corp.)
B.H—Budd or Motor Wheel
B.N—Budd or Motor Wheel
B.S—Borg & Boek or Spierr
Bud—Buda Co.

Car—Carter Carburetor Corp.
C-D—Clark or Dayton
C-E—Chevrolet and Eaton
CH—Champion Spark Plug Co.

Gbe—Globe-Union, Inc.
Gom—Gemmer Mfg. Co.
GO—G&O Mfg. Co.
Gun—Gunite

Chia—Champion (Champ Spring Co.)
Gla—Champion Charlet Rquipment Co.
Gla—Charlet Rquipment Co.
Go—Cherchet and Own Corp.
Gon—Continental Motors Corp.
GSB—Cherchard Steel Products
GSB—Cherchet Spicer and Blood
G-T—Cherchet and Thornton
Gw—Chummins Engine Co.
G-W—Cherchet and Thornton

Han—Handy (King-Seeley Corp.)
Har—Earsien Radiator Division
Hor—Bercules Motor Corp.
Hof—Roof Products Co.
HW—Eall Winslow
HW—H.W Filter (Michiana Products Corp.)
H-W—Hercules or Waukesha

Juns Jamestown Metal Equipment Co. Inf-Inland Mfg. Division

Delco-Remy LBK—Lockheed, BK Booster L-D—Leese Neville Starter, KH—Kelsey-Hayes Wheel Co. KS—King-Seeley Corp. erator

Loi-Lebbing
LIN-Leece-Neville Co.
Lng-Loor Mg. Division
Loc-Lockheed (Wagner Electric Corp.)
LV-Lockheed with vacuum booster

Mar—Maremont Automotive Products. Inc.
Mat—Mather Spring Co.
MeC—McCord Radiator & Mfg. Co.
Mec—Mechanics Universal Joint Division
M-Front Mechanics, Rear Ford 01Y
Mid—Miller Tool & Mfg. Co.
Mid—Miller Tool & Mfg. Co.
Mid—Miller Tool & Mfg. Co.
Mod—Monarch Governor Co.
MW—Motor Wheel Corp.

Eat—Eaton Mfg. Co.
Egy—Eaton and Spring Perch
ESS—Eaton and Spring Perch
ET—Eaton Spring Perch and Standard Steel
ET—Eaton and Truxmore
Ext—Exiel (Electric Storage Battery Co.)
Ext—Excel Auto Radiator Co.

Par-Parish (Spieer Mfg. Corp.)
Pre-Pierce Governor Co.
Pre-Perley
PL-Perley
PL-Prest-O-Lite Battery Co.
Pur-Purolator Products, inc. OFT—Optional
O-K—Own or Keleey-Hayes
O-S—Own or Spicer

Nat-National Battery Co.

Fed—Fedders Mfg. Co.
F-G—Ford and Own
Frd—Ford Mod or
F-S—Fuller and Spicer
F-S—Fuller and Spicer
F-S—Fuller Spicer and Blood
F-T—Ford and Then and Timken
F-Tm—Ford and Timken
F-Tm—Ford and Willard
F-Tm—Ford and Willard
F-W—Fireston and Willard
FWD—Four Wheel Drive Auto Co.

cleaner, oil filter and the fuel pump. Similarly, parts of the cooling system, electrical system, the transmission line, running gear, springs and frame complete the standard component parts identification, by makes and madel numbers, that should prove to be a valuable, time-saving guide for busy fleet maintenance men.

RB—Rockford with Borg & Beck disc RO—Ross Gear & Tool Co. Ros—Roehlk P-Y-Perfex or Young

Sag—Saginaw Steering Gear Division Set—Sanitula Magneto Division Shu—Shuler Axle Co. Shu—Shuler and Wisconsin S-F—Spiece or Fuller Sp—Spiece Mg. Corp. Sp—Spread Steel Spring Co. SS—Standard Steel Spring Co. SS—Stronberg Carburetor Division Str—Stronberg Carburetor Division SW—Steronberg Carburetor Division

The—Thornton
T-E—Timken and Eaton
T-S—True-Stop (American Chain and Cable Tim-Timken Detroit Axle Co.

Uni-United Air Cleaner Division UP-Universal Products Co. Vor-Vortex Mfg. Co.

Wag—Wagner Electric Corp.
Wal—Warner Gear Division
Wal—Wanner Gear Division
Wal—Wanted March Co.
W.E.—Willard or Exide
Wee—Westinghouse air (Bendix-WestingWee—Westinghouse air (Bendix-WestingWeb—W. G. B. Oil Clariefer, Inc.
Willard Storage Battery Co.
Willard Storage Battery Co.
Willard Storage Battery Co.

Yat—Yates Yng—Young Radiator Co. YS—Youngstown Steel Co.

Zen - Zenith Carburetor Division

	Fine Number	-444667695	-2222567668		2021587586	-5622885888	88888888	222
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THIRD AXLE **SPECIFICATIONS**

Many fleet operators are doubling truck payloads by converting small and medium vehicles into trucks of larger capacity with third axles. Operators considering such changes will find much valuable data in this table.

Data covers trailing and driving axles. In both cases the fleet operator will find the extra capacities obtainable; axle weights, types and sizes; loads distribution range; ample spacing; prices, etc.

NOTES ON HEADINGS

NOTES ON HEADINGS

General—(a) The capacity of the third axle (Column 2) is not to be confused with the total capacity made possible on the converted vehicle.

Column 3. The price of the unit includes the standard brakes specified in brake column and frame extensions that extend forward under the cab. Tires and brake (air or vacuum) power are not tncluded in price nor is the cost of installation.

Column 4. Weight of third axle unit includes all appurtenances and maximum tires.

Column 15 gives brake lining area of attachment unit only.

ABBREVIATIONS

**—On application

**—Truxmore—Heavy cast beams (cushioned by patented spring arrangement) used in place of leaf springs

(v)—3½ x3½

(x)—Patented 4-wheel chain drive available for all Trucktor units

(z)—Depends upon installation

+--OPTIONAL BRAKES

Little Giant—Own or Bendix Utility—Bendix and Lockheed

COLUMN 9

Chev—Chevrolet Own—Own Eaton Shu—Shuler Eaton Ford—Ford Tim-Timken

COLUMN 10

D-Driving Re-Rectangular Sr—Solid round Sq—Square T-Tubular

COLUMN 12

B—Bendix C—Chevrolet F—Ford H—Hydraulie

L—Lockheed M—Mechanical 0-0wn

V-Vacuum power

In

of

W th in A

de fo

COLUMN 13

CA-Cast Alloy Iron

	Notes	ý	with Max. Extension,		TRIBL	DIS-	(98)	AXL	E DA	ATA	BF	RAKE	S (Standa	rd)	of	iper	
AXLE MAKE AND MODEL and Truck Mode Adapted To	Capacity (Lb.) See Explanatory No	Price (f. o. b. factory)	Weight (Lb.) with Tires, Frame Exter Etc.	Maximum Tire Size	(First or comi applies! axle:	Figure bination to center second to third	Axle Spacing (with maximum tires)	Make	Type	Size	Make and Type	Drum Material	Brake Diameter and Width	Lining Area	Number of Points Frame Support	Spring Size or Number Leaves Added	Spindle Diameter (at Inner bearing)
. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Trailing Axles																	
FABCO 215 (Ford)	11000 11000 11000 13000	540 540 540 725	2000 2000 2000 3000	8.25/20 8.25/20 8.25/20 10.00/20	52-48 52-48 52-48 52-48	*******	44 44 44 48	Tim Tim Tim Tim	TTTT	41/2 41/2 41/2 41/2	LH LH LH	GA GA GA	15x3½ 16x2¼ 16x3½ 16x3½	192 132 205 205	2 2 2 2	48x2½ 48x2½ 48x2½ 55x3	211 211 211 216
LITTLE GIANT 8-ton (For any 1½ ton truck) 10-ton (For any 2 ton truck) 12-ton (For any 2½ to 5 ton truck)	16000 18000 20000	488 750 890	1575 2000 2410	8.25/20 8.25/20 9.75/20	47-53 50-50 50-50	*******	42 44 44	Shu Shu Shu	Sq Sq	3	BHV† BHV†	CA CA CA	16x3 16x3½ 17x4	167 180 250	4 4 4	42x2½ 44x3 44x3½	2% 3 3
TRUCKTOR (x) HLF (Ford 1½) HLC (Chevrolet 1½) HLL (Light truck tires to 6.25/20). HLS (Modium truck tires to 9.00 22). HLR (Heavy truck tires to 10.00/22). HR (Heavy duty tires to 12:00/20. HR5 (Extra heavy duty tires).	8800 8800 11000 14000 16000 21000 30000	480 480 575 881 1098 1282 ‡‡	1750 1750 1895 2265 2710 3177 3358	7.50/20 7.50/20 8.25/20 9.00/22 10.00/22 11.00/24 12.00/24	50-50 50-50 50-50 50-50 50-50 50-50 50-50	60-40 60-40 60-40 60-40 60-40 60-40	43 43 45 48 49 52 53 ¹ / ₂	Own Own Own Own Own Own	Sr Sr Sr Sr Sr Sr	31/4 31/2 4	LHV CHV LHV LHV LHV LHV	CA CA CA CA CA	15x3½ 16x3 16x2¼ 16x3½ 17¼x4 17¼x4 17¼x5½	196 219 132 205 251 251	6 6 6 6 6 8	38½x2½ 38½x2½ 38½x2½ 38½x3 40x3 41½x3 43½x4	2% 21/2 21/2 21/4 21/4 31/4 31/4
TRUXMORE 22 (Not exc. 253 eu. in.)		580 657 790 985 1075 1200 1350	2250 2500 2700 2900 3500 3700 4100 4400	7.50/20-Ep1 8.25/20-10 8.25/20 9.00/20 10.00/20 11.00/20 11.00/24 12.00/24	56-44 54-46 53-47 53-47 52-48 52-48 50-50 50-50	65-35 65-35 65-35 65-35 65-35 65-35 65-35	44-45 45-46 48-47 47-46 48-50 49-53	Own Own Own Own Own Own Own	Sq Sq Sq Sq Re Sq Re	2¾ 3 3 3¼ (v)	LHV LHV LHV LHV LHV LHV	CA CA CA CA CA CA	15x3½ 15x3½ 16x3½ 16x3½ 17¼x4 17¼x4 17¼x5 17¼x5½	200 200 210 210 251 251 350 400	4 4 4 4 4 4	**	2 to 2 to 2 to 3 to 3 to 3 to 3 to 3 to
UTILITY 25 (For any 1½-2 ton truck) 30 (For any 3½ ton truck) 35 (For any 5 ton truck) 300.	9000 13000 18000 15000	434 683 752 802	1100 1800 1900 1560	7.50/20 9.00/20 10.50/24 10.50/24	55-45 55-45 55-45 55-45	66-33 66-33 66-33	41 44 50 44	Own Own Own Own	Sq Sq Sq	3	OMV OMV OMV	CA CA	16x4 17x4 17x4 17x4	240 264 264 264	4 4 4	None None None 8	21/4 23/4 21/6 23/4
Driving Axles																	
FABCO 515 (Ford). 515 (Chevrolet). 515 (All other makes). 630 (All other makes).	10500 10500 10500 13000	1165 1165 (z) (z)	2400 2400 2400 3000	8.25/20 8.25/20 8.25/20 10.00/20	50-50 50-50 50-50 50-50	 	44 44 44 48	Tim Chev Matc Matc			FH CH LH	CA CA CA	15x3½ 16x3 Match Match	192 176 (z) (z)	2 2 2 2	48x2½ 48x2½ 48x2½ 53x3	23/6 25/6 2
THORNTON TANDEM DF26F (Ford) (e.o.e.) DF27FO (Ford) (e.o.e.) DF30E (Ford) DF30E (Ford) DF30E (Ford) DF31EO (Ford) DC30E (Chevrolet) DC29E (Chevrolet) DC30EO (Chevrolet)	11000 11000 12750 12750 13500 13500 11000 11000 12750 13600 12750 13500 12750 13750 13750	1125 1125 1250 1250 1250 1600 1100 1560 1550 1675 1250 1370 1370	6800 6780 7220 7380 7720 7880 6175 6890 6795 7310 7020 7490 8430 8830	34x7 34x7 34x7 34x7 34x7 34x7 34x7 34x7	50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50 50-50		42 42 42 42 44 44 44 42 46 48 44 42 42 48 48 44	Ford Ford Eat Eat Chev Chev Eat Eat Eat Eat Eat Eat Eat Eat Eat	00000000000000000	31/4 41/4 41/4 41/3 31/4 31/4 31/4 41/4 4		GA GA GA GA GA GA GA GA GA GA GA GA GA G	15x31/5 15x31/5 15x31/5 15x31/5 15x31/5 16x3 16x3 16x3 16x3 16x3 16x3 16x3 16x3	198 198 198 198 198 218 218 218 218 218 218 218 218 218 21	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	42x2\4 42x2\4 42x2\4 42x2\4 42x2\4 43x\5 43x\5 42x2\4 42x2\4 42x2\4 43\4x 2\4 42x2\4 42x2\4 42x2\4 42x2\4 42x2\4 42x2\4	



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DOMESTIC STANDARD

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COMMERCIAL CAR JOURNAL

and brought up to date in this issue from data supplied by manufacturers

KEY TO REFERENCES

KEY TO DEFINITIONS, ABBREVIATIONS AND REFERENCES

c.f.-Cab Forward design.

MAKE AND MODEL Only Domestic Truck Models are listed.

DEFINITIONS

(C)—Converted Ford or Chevrolet model, identifiable by engine make listed. c.o.e. - Cab-Over-Engine design.

(T)-- Designed for tractor use only. (D) -Diesel-engine equipped. Por the express upropes to best fitting the truck to the individual job most of the models listed eas be provided with optional engines, transmissions axies etc., and these models when the considers we can be considered that the considered standard stock models.

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Cross Vehicle Weights for Normal Operating Counting the Counting Counti The chassis list price applies to the unitarian and standard wheelbase with standard three spiles are F.O.B. factory. Chassis list price and ones not include the price of the Cab unless otherwise noted.

RECOMMENDED QROSS VEHICLE WEIGHT FOR NORMAL SERVICE

(3) Available—All models available in oversize power plants, oil engines and clirch conventional or co.c. design oversize power plants, oil engines and clirch available but from the condendation of the cond

price listed.

(1) International Harvester—Speciflections shown represent only the basic
standard chassis surite and standard
chassis ratings in Reeping with definitions established by Commercial CarJournal. Optional units not shown such
as engines, clutches, transmissions
axies or axie ratios, brakes, wheels and
titres, frames or fram a reinforcements
optional wheelbases or any other units
which make up part of the truck chassis
and which International will furnish
and approve from the factory as optional
eculpment can or will change either the
frings, chassis weight shown or perfrings.

MAXIMUM AUTHORIZED
The tire size listed in this column is the maximum size recommended by the manufacture of the chassis for the Cross Center Weight for Norman Operating Conditions. It is durnished at extra good. If the Chines from the standard size. Dual rears are understood; exceptions noted.

STANDARD TIRE SIZE
The standard tire size listed is that which
is included in the Chassis List Price.

Also the company reserves the privileges of assigning speciality from the ordinary in the opinion of our engineers providing in the opinion of our engineering department, the type out decrees builties the new rating with out decrees builties the new rating with a farmy in the safety factor decreasing from the safety factor decreasing the safety factor decreasing the safety factor decreasing the safety factor decreases and safety factor decreases and safety factor decreases a safety factor. Companyly of the safety factor decreases a safety factor decreases a safety factor decreases a safety factor. The safety factor of the safety fa

The minimum witeles as the so-called standard wheelbase is the so-called standard wheelbase on which the Chassis List. Frice is based.

MAXIMUM STANDARD

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MINIMUM STANDARD WHEELBASE

MAXIMUM BRAKE HP.
Maximum Brake Horsepower at Given
B.P.M. is actual dynamometer reading
without accessories.

without accessories.

GEAR RATIO RANGE
Gear Ratio Range in High—Ratios
within the range given are svallable at
no extra cost. Exceptions are noted.

monparable expandity averaged unit of monparable expandity averaged and on to gasoline morder vallable in addition to KWIIVs—Advertised list price less efferts its., Cab Pick-up 8575; Fanaleleivery 8549. Prices, complete with nock absorbere and front and rear ancil Postlevery 600/16—4 pty.

and Delivery 600/16—4 pty: 6.00/165

TRACTORS

Unless given the designation (N)—
meaning not svaliable as a tractor—all
standard models may be assumed to be
available as tractors. Exclusively Tractor models are designated (T).

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
Cat—Caterpillar.
C or Cla-Clark.
C or Che—Clark.

Tork" real.

Lockheed front, Own rear.

Lockheed front, Wisconsin rear. ed front, Wagner

BRAKES—SERVICE Location

—Two Wheels, rear only.

4—Four Wheels, front and rear.

4—Four Wheels, rear only.

5—Six Wheels, front and rear.

|--Internal.

CHASSIS WEIGHT
The chassis weight listed includes the
weight of the minimum standard whoselbase chassis, with sowl, with standard
trues, with standard equipment, with
cranteses and cooling system full, and
6 gallons of fuel in the tank. It does not
include the weight of the Cab. This
applies to C.O.E. as well as conventionall chassis types. Exceptions are noted.

A—Alr.
D—Hydraulic and mechanical.
H—Hydraulic.
M—Mechanical.
V—Vacuum.

A-American Car Foundry **BRAKE DRUMS** Material

nins-Diesel.

-ju..

Own. t-Optional.

S Nu-Bauner,
Tor Time-Timken,
Tor Time-Timken,
Two-Timken (noth, Own rear,
Two-Timken (noth, Own rear,
W.H.—Withen-Wisconsin,
W.H.—Withen-Wisconsin Herrington,
W.H.—Withen-Wisconsin Herselman,
W.H.—Withen-Wisconsin,
W.H.—Withen-Wisconsin,
W.O.—Wisconsin,
W.O.—Wisconsin,
W.O.—Wisconsin,
W.F.—Wisconsin,
W.F.—Wisconsin,

Operation

BRAKES-HAND Location

-Center of double propeller shaft.

-Rear wheels

--Two-wheel brakes effective on all
four wheels through driveshaft.

Four wheels.

p wer of drums on rear Two dru

KEY TO ABBREVIATIONS

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

hannel supered front and rear.
hannel reinforced with liner
hannel reinforced with both liner
of dishplate.
Channel supered front and rearreinforced with liner.
Sapered front and rearrop Center front.
Braced. i tapered front and rear. reinforced with liner. reinforced with both liner

ep section channel frame with oak msert. raight section sidemembers. lined light section channel sidemems, lined with full length channel of orcements, and oak inserts. **GOVERNOR STANDARD**

Final Drive and Type REAR AXLE

(*)Ratios other than standard at extra Gear Ratios

A—Radius Roda and Torque Arm. H—Hotchkiss (springs). R—Radius Rods. T—Torque Arm. U—Torque Tube. **Drive and Torque** (**) Only one ratio.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
4F—Front Axle and Forward unit of Rear Axle Group.
4F—Front Axle and Rear unit of Rear Axle Group. 6-All whe

	1	Type			:										
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	dai	Gear Ratio	4-6.6 14-6.6 80-6.8 80-6.8 16-7.4	8-7-8 0-7-8 10.25 10.25	-6.25	000004044	2-7-4 Rge-7-83 8-59 8-59	000-1000	44.44.85 43.44.85 43.55 43.55	66.17 43.17 43.17	43.17	433.06.17	\$30.00 \$40.00 \$7777	6.17	
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REAR		Make and Model	T'lm 53514H T'lm 53308H T'lm 53308H T'lm 54411H T'lm 54411H	Tim 56410H Tim 58300H Tim 65743H Tim 65743H Tim 66728H	01 10	Tim 53521H Tim 53521H Tim 53307H Tim 56411H Tim 56411H Tim 56411H Tim 56411H	Tim 56411H EatA17-17000 Tim 56411H Tim 58300E EatA17-17000 Tim 58300H Tim 58300H	Wis 1837BH Wis 1837BH Wis 1757BH Wis 1757H Wis 1757H	Own Own Own Own	Own Own Own Own Own	Own Own Own Own Own	Own Own Own Own Own	Own Own Own Own Own	Own Own Own	cial panel ho
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TRANS-		Make and Model	WW W C T T T T T T T T T T T T T T T T T	Fu 5A330 Fu 5A330 Fu 5-A-430 Fu 5-A-430 Fu 5-A-620	WG T48E	WG T9 WG T9 WG T9 WG T9 WG T9 BL B341 BL B341 BL B341	Fu 5A330 Fu 5A33 Fu 5A43 Fu 5A43 Fu 5A43 Fu 5A43	Fu 5-A-62 Fu 5-A-62 Fu 5-A-62 Fu 5-A-62 Fu 5-A-62 Fu MHU	O O O O O O O O O O O O O O O O O O O	0000mn 0000mn 000mn	000000 00000 00000 0000	00000Wn 000Wn 00Wn	Own Oown Oown Oown	Own Own Own	A Includes
bra	puw	Governor St	ZZZZZZ	ZZZZZ	Z	ZZZZZZZZ	北京太太太太太 対対対対対対の中	*************************************	ZZZZZZ	ZZXXZZ	ZZXXZZ	ZZXXZZ	ZZXXZZ	ZZXX	ź
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1.8		Max. Brake H.P. at R.P. Given	65 73-3000 65 73-3000 65 73-3000 78 78-3100 88 85-3200 88 85-3200	86-3200 0 95-2800 0 106-2400 0 112-2300	1 22-3800	71-8100 80.5-3100 80.5-3100 80.5-3100 80.5-3100 7 92-2800 7 78-2650	104-2800 100-2800 100-2500 100-2500 112-2500 112-2500 112-2500	106-2600 133-2600 1106-2600 1144-2400 144-2400	888888	90000000000000000000000000000000000000	90-3300 83-3300 83-3300 83-3300	90-3300 93-3100 93-3100 93-3100	90 93 93 93 93 93 93 93 93 93 93 93 93 93	90-3300 93-3100 93-3100	and 8.25/20
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SIZES	D-dual rear S-single rear	mumixaM basinotiuA Size Size Time size (Data size)	7.50/20 7.50/20 8.25/20 9.00/20 9.00/20	000000	5.00/15	32.46 7.50/20 7.50/20 8.25/20 9.25/20 9.00/20	888888999	10.00/22 11.00/22 12.00/24 11.00/24 12.00/24	15/68 15/68 15/68 7.50/17-88 7.50/20-88 7.50/20-88	7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-88	7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8	7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8	7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-88	7.50/20-8 7.50/20-8 7.50/20-8 7.50/20-8	when truck is
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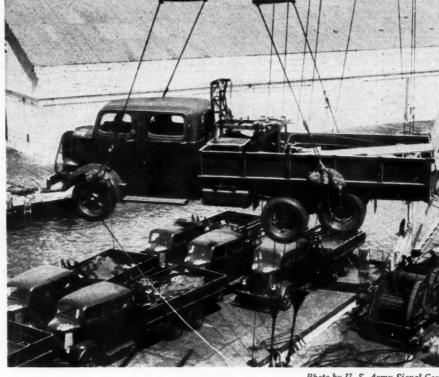


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Rear 7.00/16-6 ply. § Dimond T—Two-speed axies optional at extra cost.



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our entire facilities have been turned over to the manufacture of heavy duty frames and other products necessary for the promotion of our national war effort.





PRESSED STEEL
HEAT-TREATED FRAMES
FOR TRUCKS & TRAILERS

The above illustration shows a number of trucks built by Mack Trucks, Inc., to carry huge searchlights of tremendous candlepower, generating units or sound locators. These trucks must be able to move at high speed over all kinds of roads and shell torn ground. They must have stamina and resilience. That is why they were built on Parish Pressed Steel Heat-treated Frames—the frames with the "Spring-back".

Parish Heat-treated Frames of Alloy Steel have a fatigue value more than 200% greater than that of non heat-treated frames. That is why Parish Frames can take their beating for two to five years longer than ordinary frames and the vital parts supported by the frame stay in line.

On the home front, too, fleets must serve America's urgent armament needs—carry munitions, materials, fuel and food for the fighting fronts in other parts of the world. For the assurance of long-lived dependability for your trucks, specify Parish Heat-treated Alloy Steel Frames—the frames with the "Spring-back".

PARISH PRESSED STEEL COMPANY, Reading, Pa.

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Western Representative: F. Somers Peterson, 57 California St., San Francisco, Cal.

PARISH

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Mobile Workshop (Open)

shifting

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and 110 fuel, rim.



Mobile Dental Laboratory



Ambulance



Instrument Repair Lorry



Field Office

s COMBAT BODIES

HERE ARE FIVE DIFFERENT TYPES OF

IN SERVICE WITH THE ALLIED ARMIES

- -built at different locations, all bodies meet rigid specifications—are always uniform
- -builders go into production overnight without special tools or tooling

Saving time . . . saving steel . . . the Canadian Body Builders Association has done an excellent job of supplying the allied forces with dependable combat cars of many types.

Assembled in different plants in different cities, production has been carefully scheduled and amazing uniformity has been maintained. Lindsay Structure has helped make these achievements possible. Die-rolled, die-drawn, die-cut sheets have made possible fast assembly-by unskilled workmen. No special equipment or tooling, even when design changes are made.

Furthermore, Ls has helped the limited supply of steel go as far as possible. Its high strength-weight ratios assure greater strength at a saving in metal (a half-ton in the case of the mobile workshop).

Do you know how easy it is to use Lindsay Structure? Phone or wire for information. Lindsay and Lindsay, Adams-Franklin Bldg., Chicago, Ill.; or 60 E. 42nd St., New York, N. Y.





LINDSAY

Described in Sweet's Catalog File

LINDSAY STRUCTURE CAN SAVE THOUSANDS OF TONS OF STEEL PER MONTH

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3 Eucliusive Advantages

that give Midland Kits greater safety and dependability

Wartime schedules demand Midland dependability

YOU must "keep 'em rolling" today. Don't risk the serious delays or damage that can result from faulty brakes. Safeguard every truck with Midland Power Brakes.

Midland Brakes are thoroughly engineered—quickly and easily installed—interchangeable in fleet operation—and backed by Midland's "Factory Rebuilt Exchange Plan."

Ask your distributor about the Midland Brake Surety Plan and Midland Power Brake Kits.

THE MIDLAND STEEL PRODUCTS CO.

IMPROVED 7.3 CU. FT. COMPRESSOR for Double Air Capacity

Assures ample reserve pressure for heavy traffic and hilly roads. Self-lubricated. Governor operates directly on inlet valves.



FULLY COMPENSATING TREADLE VALVE

for Perfect Control

This foot control valve is the same as used on the heaviest vehicles. Releases any amount of air up to full tank pressure without fanning pedal.

YOUR CHOICE of diaphragm chambers or cylinders

Midland kits are made flexible to suit your own individual preference.



MIDLAND CHRISTENSEN POWER BRAKES

"Those Who Know POWER BRAKES... Choose MIDLAND"



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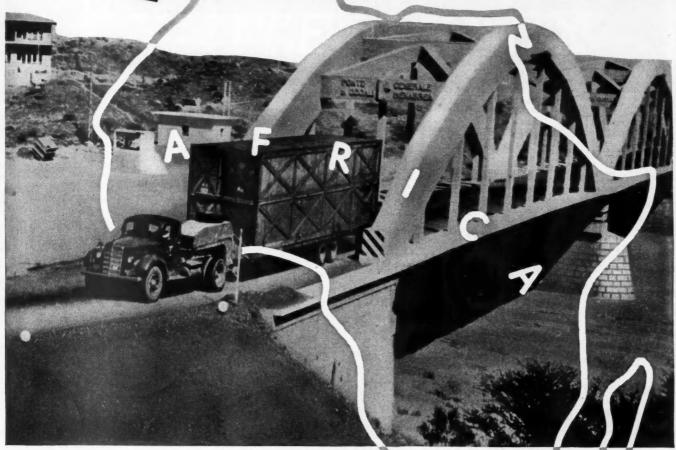


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The capacity governs gross load. 2 All chassis weights include cab. Prices subject to F.P.m. This in combination with Chev. 235 cu. in engine develops 286 ft. it torque and 140 hp.

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The Censor passes an Acme News photo of a sturdy Mack Model EH tractor-trailer lugging a crated Curtiss P-40 Fighter into action in the ex-Italian colony of Eritrea.



THEY ROLL" BEFORE THEY FLY OR FIGHT...



TRUCKS
FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

The average man in the street is apt to think of the air achievements of our day in terms of 50,000 foot ceilings and better than 400 mile-an-hour air speeds. But as everyone interested in truck transportation knows, something important, too, takes place on wheels before any plane leaves the ground.

Trucks help build those planes. Trucks like Macks haul raw materials and parts and even complete planes to and from aircraft factories.

Trucks help build airports. Macks are doing the heavy work in airport construction in many parts of the world. Mack "tankers" haul gas and oil to "keep'em flying" once the airports are in service.

The fact is, the wheel is still the most useful invention ever made by man. And for 43 years nobody has put the wheel to better use in truck transportation than Mack.

Mack Trucks, Inc., Long Island City, N. Y. Factories at Allentown, Pa., Plainfield, N. J., New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.

A MACK, YOU'RE LUCKY . . . IF YOU PLAN TO GET ONE, YOU'RE WISE

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LYNITE* LO-EX



Wish we could say, "Come and get 'em." We're making more than ever of those high-quality LYNITE LO-EX PISTONS you were using for replacements before the war. But they're all going into fighting equipment.

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*Lynite and LO-EX are registered trade-marks of Aluminum Company of America, makers of castings for genuine Lynite Pistons.

THE OHIO PISTON CO.

CLEVELAND, OHIO

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TWENTY-FOUR YEARS OF TRUCK SPECIFICATIONS

piled and published in the January, 1919, issue. A complete file of all issues containing these specifications is maintained in the Philadelphia, New York, Cleveland, Chicago and Detroit offices. Arrangements for reference may be made with any of those offices. Truck Specifications have been published by the Commercial Car Journal for almost a quarter of a century. The first table was com-



BRIDGEPORT · CONNECTICUT

AMERICAN CHAIN & CABLE COMPANY, Inc.



WASHINGTON RUNAROUND

Certificate Revocation . . . Retailoring Over-Estimates . . . Serious Gas Shortage Seen . . . Once Again, That Old Ceiling . . . No Used-Truck Rationing . . . 100,000 Idle Trucks . . . Tank Truck Freeze . . . WPB Poops on Pool . . . Bureaucratic Overlap . . . Wrench-Wenches

by GEORGE T. HOOK, Editor

Certificate Revocation

Certificate revocation procedure, to be used in dealing with violators of ODT Order No. 21, has been worked up by ODT, is now in the comma-spotting stage and should be announced shortly. Some in the ODT hierarchy are anxious to make use of the revocation process on a few of the more flagrant violators. They would like to make an example of them and thus inspire more respect than seems to be accorded the Certificate of War Necessity Order.

Retailoring Over-Estimates

District offices of ODT are reported "tailoring back" (that's the bureaucratic term for a reduction in the gasoline allotment) the overestimates made by truck operators on their certificate applications. Some operators have been called in to be "tailored back" and other operators, hearing that there is liability to prosecution, have come in voluntarily. This department has been asked to emphasize the matter. Officially,

overestimates are viewed seriously. Truck operators have not been openly accused, but they are suspected of being a potential source of supply for the black market. The suspicion does not fall with equal weight on all operators. This is particularly true of fleet operators, who have much to lose if convicted.

Serious Gas Shortage Seen

This "tailoring back" process will be extended to all certificate holders if a more serious shortage of gasoline should occur. There are some quarters that expect such a shortage this summer. It will probably be coincident with major offensives in the theatres of war. If and when a shortage should occur that affected truck operations, the less essential (look for a definition and you look in vain) operations will be penalized in favor of the more essential (definition ditto) operations. Although this prospect is unpleasant, the ODT control center is pleasantly alive to the fact that because of the data compiled by means of the applications for Certificates of (so-called) War Necessity, it has at hand the machinery for doing a nation-wide or regional "tailoring back" job with dispatch. Truck operations have been classified and if a shortage calls for reduction of allotments ODT will simply determine the classifications to be cut, the amount of the cut, notify its district offices and they in turn will get the cooperation of local OPA rationing boards.

Once Again, That Old Ceiling

The unofficial reports and details of a used-truck price ceiling that have appeared in this department during the last six months were made official the middle of March when the Office of Price Administration announced that "ceiling prices for used trucks substantially below those being asked by some speculative dealers will be established shortly." From two sources we procured effective dates which are only a day apart, close enough to be considered valid. One date is April 25, and the other April 26. First appearance of the usedtruck price ceilings, regulations and factory list prices for years back will be in the Federal Register. Ten thousand list prices will be appended to the regulations. The Federal Register containing this material will be thicker than the thick publication you hold in your hand as you read this. The January issue of this department contained details of the price ceiling schedule that are still considered trustworthy. If you're curious and can't wait until complete details are published in the May issue, take a look at page 130 of the January number.

No Used-Truck Rationing

After some wavering on the subject, ODT has finally decided not to ask for a freeze of used-truck sales and not to subject them to rationing procedure. Used trucks therefore will be unfrozen and unrationed. No official reason has been given for the decision. An official reason is that used truck rationing would cost \$1,000,000 a year. Time was when a million dollars was small change in Washington. But with Congress slashing appropriations of all Federal bureaus and agencies, a million bucks

(TURN TO PAGE 210, PLEASE)





VITAL STATISTICS OF THE TRUCK INDUSTRY

REGISTRATION STATISTICS ON PAGES 106 AND 108

AGE OF TRUCKS IN USE*

Truck Production (U. S. &

1904 411
1905 450
1906 500
1907 700
1908 1,500
1907 700
1908 1,500
1910 6,000
1911 10,861
1912 22,000
1913 23,500
1914 23,375
1915 74,000
1916 92,130
1917 128,157
1918 227,260
1919 275,943
1920 321,394
1921 194,394
1922 277,140
1922 277,140
1922 368,961
1924 434,140
1925 586,618
1928 586,618
1929 828,817
1929 828,817
1931 434,176
1932 446,282
1933 386,448
1934 797,392

Foreign assemblies of parts made in U. S. but assembled abroad are included in this table.

† Figures for 1921

† Figures for 1921 to date are "factory sales" for U. S plants and "production", for Canadian plants.

Year	New Truck Registrations	Per Cent Surviving	Number Surviving	Average Age	Of Trucks in Use	Per Ceni of Total
1942	82,205	100.0	82,205	1/2	82,205 are up to 1 year of age	1.85
1941	340.697	99.6	638, 134	11/2	720,339 " " ' 2 years of age	16.22
1940	576,327	98.7	568.835	212	1,289,174 " " " 3 " " "	29.02
4000	486,748	97.6	475.066	312	1.764.240 " " " 4 " " "	39.72
4800	365,349	96.0	350,735	412	2.114.975 " " " 5 " " "	30.12
	618,249	93.3	576,826	777	2,114,373	47.62
1937			0/0,020	072	2,001,001	60.60
1936	611,644	89.0	, 544,363	01/2	3,238,164 " " 7 " " "	72.86
1935	510,683	82.0	418,780	71/2	3,654,924 " " 8 " " "	82.29
1934	403,886	71.9	290,394	81/2	3,945,318 " " 9 " " "	88.82
1933	245,869	58.8	144,571	91/2	4,089,889 " " " 10 " " "	92.08
1932	180.413	44.0	79.382	101/2	4.169.271 " " " 11 " " "	93.87
1931	313.884	29.2	91,654	1112	4.260.925 " " " 12 " " "	95.93
1930	410,699	17.9	73.515	1212	4.334.440 " " " 13 " " "	97.58
1929	527.057	11.1	58,503	1312	4 392 943 " " " 14 " " " "	90 80
1000	341,123	5.9	23,537	1412	4.416.480 " " " 15 " " "	99.43
	327,965	4.4	14.436	1817	4,410,400	
1927	321,300			101/2	4,430,810	99.76
1926	385,897	2.8	10.808	161/2	4,441,718 17	100.00

^{*} These data are purely a statistical approximation calculated from a life curve applicable to passenger cars.

TRUCK PRODUCTION BY CAPACITIES-UNITS

(U.S. and Canada)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941†
1 ton or less	141,859 78,786	144,869 31,028	109,220 4,899	79,127 1,618 144,113	99,028 893	172,069 2,341	2,259	316,208 9,686	395,157 21,580	194,827 30,951	292,768 29,725	338,670 43,723	440,768 68,281
134 ton and loss than 2 2 ton and loss than 234	523,691 28,416	370,541 16,477	289,418 8,516	7,620	228, 239 18, 868	378,475 25,995	420,597 28,950	423,503 30,637	441,158 30,431	248,200 18,375	344,199 26,701	354,235 52,080	463,137 124,741
2½ ton, less than 3½ 3½ ton and less than 5 5 ton and over	33,830 8,643 2,384	22,887 6,412 1,094	11,516 4,532 906	6,006 2,689 1,407	7,728 2,859 580	11,136 4,752 1,219	10,465 3,612 3,824	12,309 4,621 5,567	18,971 8,170 9,248	9,954 4,539 5,820	18,801 7,619 7,365	28,224 8,788 8,524	63,534 15,069 14,458
Special types	9,508	6,683	5,169	2,705	3,356	5,390	*12,341	*15,846	*24,789	*19,759	*30,375	*55,640	*80,676
Total	826,817	500,991	434,176	245,285	358,548	599,397	732,005	818,377	947,502	530,425	757,553	889,884	1,270,647

Includes Station Wagons. † Partly Estimated. Note-1942 production figures censored.

TRUCK PRODUCTION BY CAPACITIES-PER CENT

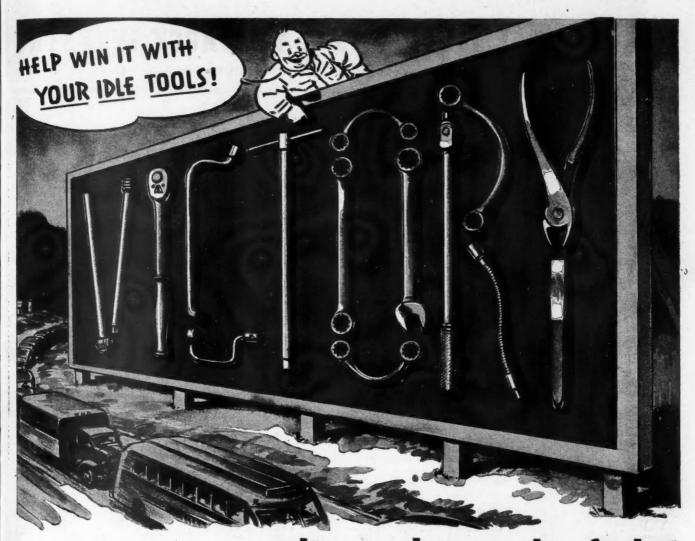
	1929	1930	1931	1932	1933	1934	1935	1938	1937	1938	1939	1940	1941†
% ton or less	17.1 9.5	24.0 5.2	25.2	32.3	27.6	28.6	34.1	38.6	41.7	36.7	38.6	38.0	34.7
13/2 ton and less than 2	63.4	61.7	66.6	58.8	63.7	62.9	57.5	52.0	48.8	46.4	45.5	39.8	38.4
2 ton and less than 2½ 2½ ton and less than 3½	3.4 4.1	2.7	2.0	3.1	2.2	4.3	1.4	3.7	3.2	3.5	3.5	8.9	9,8
31/2 ton and less than 5	1.0	1.0	1.0	1.1	.8	.8	a .5	.5	.6	.9	2.5	1.0	1.2
5 ton and ever	1.2	1,4	1.2	1.1	.9	9	*1.7	41.9	1.0 •2.6	3.7	*4.0	*6.2	1.1 6.4
Total .:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^{*} Includes Station Wagons. † Partly Estimated.

TRUCK PRODUCTION BY MONTHS, BY YEARS

(U.S. and Canada)

14.00	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	
January	67,765	40,938	35,475	21,160	19,429	44,870	64,529	68,655	74,995	58,062	64,093	74,016	100,850	January
February	65,950 79,587	52,925 69,031	41,853 47,671	24,291	15,592 18,508	44,952 61,068	63,204 70,520	65,938 81,875	72,939 96,016	51,484 52,106	83,606 77,107	71,690 75,285	104,172 111,580	Februar Marol
April	91,855	74,477	53,188	28,539	27,975	67,532	09,338	91,049	100,324	47,818	68,066	76.807	102,786	Apri
May	94,940	62,080	47,805	27,491	35,132	60,348	50,324	79,379	96,965	41,575	63,793	74,139	117,817	
June	98,164	51,486	41,496	23,572	43,448	48,292 44,546	68,785	81,185	91,820	41,867	66,964	67,787	118,757	Juni
Auguet	78,703 59,985	44,960 43,296	35,386 32,890	15,137 15,319	39,310 42,601	53,890	61,582 58,942	71,383	83,996 87,802	38,336 35,259	62,750 40,868	74,005 41,533	121,300 83,104	Augue
September	54,883	46,587	31,878	20,003	35,874	48,335	33,229	47,496	55,033	20,174	27,580	56,703	78,413	September
October	06,235	41,928	22,406	14, 157	30,772	49,643	60,203	35,359	31,939	22,380	65,079	86,104	100,166	October
November	50,268	37,493	20,118 24,052	12,560 21,782	19,106	35,107 42,814	60,729	54,628	67,508	54,638	73,407	93,068	110,788	November
Designation	28,582	34,840	44.002	41,762	30,801	92,814	84,629	77,636	88,165	66,756	84,260	98,747	120,905	December
Total	826,817	599,991	434,176	245,285	350.548	599.397	732,005	818.377	947.502	530.425	757.563	889 884	1.270.647	Total



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Critical as any blazing battle front on the globe is the battle on the home front...the battle to keep essential transportation rolling...a battle that must not be lost!

Slim ranks of hard-worked mechanics hold the transportation battle line today. Many need tools ... tools like those that flow to keep our tanks thundering, bombers flying, munitions moving. And many more mechanics will desperately need tools in the months ahead.

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KENOSHA, WISCONSIN



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☐ I need tools, and will consider purchasing Victory tools of good quality and condition, at fair prices.

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VITAL STATISTICS OF THE TRUCK INDUSTRY

(CONTINUED FROM PAGE 104; OTHER STATISTICS ON PAGE 108)

NEW TRUCK REGISTRATIONS BY MAKES*

(Data for 1942 not available. See table of U. S. New Truck Registrations by Months)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941†
Autocar	2.941	2,009	1,748	1,015	1,127	1,139	1,001	1,451	2.181	1,617	2.044	1.955	2,510
Irockway	4,5331	3,7801	1,6851	752	875	1,213	1,245	1.695	1,593	1,303	1,815	1.872	2,294
Chevrolet	160.892	118,253	99,600	60,784	99,880	157.507	167,129	204,344	183.674	119,479	169,457	194,038	212,797
Diamond T	3,590	2,888	2,483	2,250	4,139	5,440	6,454	8.750	8.118	4,393	5,412	6.358	6,077
Dodge	28,567	15,558	13,518	8,744	28,034	48,252	61,488	85,295	64,098	33,656	48,049	54,615	62,928
Fodoral	2,853	2.005	1,523	1,167	1,360	1,962	2.190	2,930	2,339	1,370	1,837	1,817	1,611
Ford	223,405	197,216	138,854	66,937	62,397	128,250	185,848	177,244	189,376	100,959	128,889	163,333	174,024
G. M. C.	14,248	9,004	6,919	6,359	6,602	10,449	11,442	26,980	43,522	20,152	34,908	42,486	45,703
Hudson							638	1.905	4.823	719	409	781	738
Indiana			*****	957	1,252	729	862	1.705	1.371	435	178		
International	31,434	23,703	21.073	15,752	26,658	31,555	53,471	71.958	78,174	55,836	66,048	77,891	92,462
Mack	6.823	4,943	2,945	1,425	1,652	1,830	1,515	4,226	5.513	4,406	6,670	7,754	9,468
Plymouth	0,000						680	2,420	13,700	6,652	8,294	9.573	7,732
Reo	12,894	8,427	5,166	3,187	3,042	5.035	5,101	4,227	4,254	2,929	853	625	1,543
Storling.	1.577	1,244	739	227	108	134	174	277	311	287	328	341	400
Stewart	2,163	2,315	1,394	867	684	736	880	1,280	1,148	390	70		
Studebaker	1.861	1,518	3,495	2,430	2,407†	1.697	2,100	3,279	5,129	2,000	2,110	1,207	5,078
White	6,121	4,395	2,561	2,138	1,384	3.963	3,304	5.767	5.933	3,514	4,558	7.344	9,271
Willya	6,536	4,264	3,131	1,132	233	25	2,280	2.441	1,122	1,889	1,634	2,291	2,031
All Others	16,819	11,107	7.050	4,290	4,035	3,970	2,901	3,480	3,861	3,383	3,187	3,466	4,015
	10,010	11,107	7,000	7,200	7,000	0,070	2,301	0,400	0,001	0,000	0,107	0,400	4,010
Total	527.057	410,699	313.884	180.413	245,889	403.888	510,683	611.844	618,249	365.349	486.748	576.327	640,897

NEW TRUCK REGISTRATIONS BY STATES*

(Data for 1942 not available. See table of U. S. New Truck Registrations by Months)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941†
Alabama	10,456	6,186	3,536	1,982	4,054	8,051	9,925	13,187	12,874	7,041	11,978	12,928	15,260
Arizona	3,061	1,899	1,295	566	1,036	2,167	3,126	3,510	3,659	2,051	2,478	2,838	3,488
Arkansas	7,911	3,478	2,613	1,467	3,638	4,980	7,363	9,485	10,836	5,909	9,200	10,890	13,636
California	30,835	27,930	19,992	10,732	13,788	20,496	28,934	33,656	36,901	23,846	25,656	32,397	39,453
Colorado	6,382	5,840	3,887	2,001	2,488	5,196	6,086	9,060	8,411	4,771	5,935	6,308	6,502
Connecticut	7,828	5,928	5,540	3,056	4,246	6,124	7,318	8,240	7,787	4,422	5,466	6,888	7,735
Delaware. District of Col	1,444	1,206	967	597	828	1,115	1,425	1,723	1,882	1,161	1,486	1,630	1,983
	2,328	1,850	2,202	1,368	1,362	1,979	2,492	2,940	2,857	1,753	2,514	2,614	2,906
	5,395	6,121	5,255	2,894	4,186	8,046	8,274	9,412	10,722	6,540	9,375	12,485	12,197
	6,768	4,998	4,779	2,544	5,260	7,921	10,887	12,941	12,998	6,818	11,702	15,468	15,742
	2,572	2,389	1,620	673	1,545	2,817	4,004	4,939	4,454	2,613	3,346	3,854	4,359
	26,584	20,037	14,786	7,863	11,784	17,584	23,046	31,123	30,451	18,055	25,353	29,535	31,692
Indiana	14,462	10,534	9,025	4,849	6,121	11,123	18,009	20,027	18,269	9,899	16,857	16,575	19,347
lewa	11,445	10,038	7,899	4,154	5,449	9,860	12,754	12,999	12,449	8,940	12,245	13,790	14,585
Kanaas	12,648	9,298	5,560	3,119	4,292	7,170	9,605	11,406	12,409	7,960	7,079	9,815	12,508
Kentucky	6,037	5,386	4,326	2,819	4,195	6,815	9,089	10,870	11,597	7,244	8,908	10,490	11,395
Louisiana	7,314	4,705	4,311	1,844	2,882	5,359	7,201	9,753	10,111	6,155	8,185	9,695	9,907
Maine	4,785	4,521	4,600	2,240	2,614	4,262	4,104	5,337	5,658	3,315	4,317	5,278	5,646
Maryland	7,055	6,038	4,864	2,953	3,818	5,457	6,657	7,362	7,783	4,741	6,307	8.054	9,138
Massachusetts	16,969	13,711	12,609	7,290	9,511	12,887	14,514	15,350	16,235	9,459	12,931	14.392	15,211
Michigan	25,585	15,818	10,722	8,402	9,085	16,281	21,104	24,840	24,549	11,268	17,704	21.622	22,186
Minnesota	11,282	10,292	7,580	4,856	5,722	9,256	12,740	14,144	13,555	8,674	10,528	12.566	13,103
Mississippi	6,977	5,518	2,137	1,476	2,752	5,414	6,573	10,367	11,176	5,826	8,472	10.604	10,408
Missouri	16,047	14,844	10,979	7,645	8,535	12,920	18,200	20,142	19,170	11,718	16,338	19.701	22,135
Montana . Nebraska . Nevada . New Hampshire . New Jersey . New Mexice .	4,338	2,596	1,874	1,150	2,055	4,215	5,939	5,930	5,044	4,112	4,561	5,359	5,544
	8,144	6,957	4,540	2,108	2,713	5,411	6,297	6,996	6,202	4,664	5,449	6,146	7,754
	934	635	646	320	233	638	1,006	1,210	1,167	731	876	1,133	1,130
	2,491	2,290	2,038	1,152	1,782	2,731	2,490	3,198	3,022	1,759	2,748	3,012	2,870
	17,587	14,764	13,051	7,505	7,401	11,444	13,165	16,935	18,446	11,591	12,725	14,710	16,900
	2,157	2,006	1,560	817	1,395	3,150	4,058	4,545	5,089	2,911	3,732	4,119	4,003
New York North Carolina North Dakota Ohio Okishoma Oregon	46,984	38,961	32,792	19,943	20,200	30,383	35,805	39,159	41,922	26,656	32,109	35,721	36,203
	9,618	6,483	6,821	3,620	6,597	11,185	13,835	14,286	15,691	9,309	12,867	14,750	18,078
	4,144	2,419	1,436	786	1,107	2,389	3,144	2,680	3,193	2,463	2,740	3,790	4,671
	27,338	20,111	14,291	8,753	11,150	20,487	22,772	30,028	28,440	15,281	22,536	26,509	30,389
	12,937	8,112	4,060	2,594	4,941	8,944	11,768	14,737	14,702	8,956	10,198	11,484	13,844
	5,819	4,193	3,099	1,451	2,488	3,780	5,964	8,050	7,859	4,064	5,873	7,212	8,973
Pennsylvania. Fihode Island. South Carolina. South Dakota. Tennessee. Texas.	37,258	30,120	23,396	15,618	19,991	29,891	32,097	41,919	39,150	21,044	28,915	36,107	38,428
	2,953	2,116	2,027	1,152	1,598	2,035	2,068	2,594	2,749	1,531	2,283	2,664	3,039
	4,760	3,706	2,959	1,213	2,604	4,228	5,481	6,091	7,257	4,305	6,431	7,634	7,978
	4,160	3,093	1,673	704	996	2,252	3,020	2,962	2,659	2,003	2,752	3,407	3,538
	5,851	5,067	3,285	2,031	3,623	6,366	9,518	11,062	10,799	8,476	9,732	12,797	13,901
	33,381	22,237	15,742	8,819	13,889	24,854	32,437	38,903	40,905	25,882	33,426	38,599	44,296
Utah. Vernont Virginia. Washington. Wast Virginia Wisconsin. Wyoming.	2,610	2,218	1,591	758	1,568	2,630	3,498	3,571	3,298	1,984	3,034	3,098	3,258
	2,027	1,670	1,339	972	1,311	2,048	2,394	2,308	2,444	1,228	2,076	2,325	2,867
	9,989	8,917	6,823	4,105	5,667	8,508	11,402	12,904	12,928	7,906	10,391	12,748	15,938
	8,325	6,680	4,640	2,471	4,002	6,199	9,076	10,666	10,222	5,416	7,149	9,306	10,672
	5,299	4,551	3,552	1,844	2,988	5,847	6,646	9,181	9,209	4,694	6,604	7,800	8,570
	14,393	12,058	8,399	4,522	5,411	9,313	13,118	16,237	16,412	8,516	10,949	13,051	14,744
	1,481	1,182	1,174	613	937	1,799	2,208	2,661	2,627	1,708	2,232	2,432	2,803
Total	527,057	410,609	313,884	180,413	245,889	403,886	510,683	611,644	618,249	365,349	496,748	576,327	640,697

[†] Includes Indiana. † Includes Rockne. †† Does not include Federal government deliveries which are included in other years. † Does not include Federal government deliveries which are included in other years.

^{*} Data from R. L. Polk & Co. † Does not include Federal deliveries which are included in other years.

SPURIES SAXLES FOR KEYSTONE TRAFERS AIR CORPS-U.S.ARMY

Just to the casual eye, the Keystone Trailer above looks pretty conventional, except that it belongs to the Army Air Forces. But as long as this War lasts, many an airman flying blind through fog or snow, or even African dust storms, will thank his stars that such an Instrument Repair Shop trailer regularly services his plane. . . . And that the trailer

itself was built to "get there with the service"!

Yes, the axles are Shulers. Shulers are "built to get there"—are getting there under much of America's finest military and construction equipment. . . . And after this War is over, you'll again see Shuler Axles under much of America's finest commercial equipment, too. Watch and see!

SHULER AXLE CO., Incorporated, LOUISVILLE, KY.

Export Division: 38 Pearl St., New York, N. Y.

West Coast Warehouse: Ford & Derby Streets, Oakland, Calif.



VITAL STATISTICS OF THE TRUCK INDUSTRY

(CONTINUED FROM PAGE 106; OTHER STATISTICS ON PAGE 104)

U. S. NEW TRUCK REGISTRATIONS BY MONTHS, BY YEARS

February 32,637 31,880 23,466 14,886 9,707 24,478 34,797 40,301 41,843 27,851 34,102 41,338 50,135 10,311 February March 46,386 42,199 30,600 16,874 9,934 33,884 41,511 52,428 60,301 37,285 45,063 63,083 62,413 8,277 March 46,280 47,029 30,848 17,784 17,301 38,682 40,785 64,685 67,532 35,682 46,063 85,962 64,226 5,685 Arch 47,029 30,848 17,784 17,301 38,682 40,785 64,968 67,532 35,682 46,063 85,962 64,226 5,685 Arch 47,029 30,848 17,784 22,925 39,831 47,868 62,183 60,857 32,937 45,381 81,583 64,177 8,784 Mrs. 10,100 48,114 33,831 28,496 17,776 23,225 39,831 47,868 62,183 60,857 32,937 45,381 81,583 64,177 8,784 Mrs. 10,100 48,114 33,831 28,496 17,776 23,225 39,631 47,968 62,183 60,857 32,937 44,747 50,913 67,412 4,775 J. July 57,943 39,904 30,102 14,731 39,642 37,490 61,243 63,685 61,685 33,475 44,747 50,913 67,412 4,475 J. July 57,943 39,904 30,102 14,731 39,642 37,490 61,243 63,685 61,685 33,475 44,747 50,913 67,412 4,475 J. July 58,187 32,787 27,707 15,081 28,799 40,790 60,285 89,222 69,872 34,231 43,823 48,980 56,181 3125 Arug September 46,889 33,833 25,967 14,967 31,289 37,225 41,390 54,611 54,711 29,570 32,983 39,224 43,982 3,428 Septem October 49,889 34,227 24,688 15,185 20,088 46,870 37,428 41,286 41,382 44,386 41,382 2,243 October 34,889 34,227 24,888 15,185 20,088 46,870 37,228 41,380 41,286 41,382 2,243 0,086 10,088 10,0																
February. 32,837 31,880 23,488 14,888 9,707 24,478 34,787 49,381 41,843 27,851 34,102 41,338 86,126 10,311 February. March. 48,388 42,199 30,009 16,674 9,834 33,884 41,511 52,428 60,301 37,255 48,003 63,003 62,413 8,277 Max. April. 56,299 47,629 38,048 17,784 17,301 38,882 46,785 64,886 67,532 33,582 46,083 86,882 64,228 5,865 Ax. Ax. Ax. Ax. Ax. Ax. Ax. Ax. Ax. Ax.	138	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941††	1942*	
	February March April May June July August September October	32,637 46,388 56,290 52,874 45,114 67,943 52,567	31,880 42,199 47,029 43,296 33,531 39,904 32,767 33,932	23,466 30,600 36,848 33,406 28,406 30,102 27,070 25,967 24,686	14,558 16,874 17,784 18,696 17,876 14,731 15,061 14,967 15,156	9,707 9,934 17,301 20,925 23,254 30,642 28,790 31,200 20,058	24, 478 33, 884 38, 882 39, 831 34, 768 37, 490 40, 790 37, 225 40, 878	34,797 41,511 46,795 47,968 48,243 51,243 50,358 41,390 37,439	40,301 52,428 64,956 62,183 56,851 63,695 80,222 54,611 41,220	41,843 60,301 67,832 65,857 56,626 61,686 60,872 54,711 40,246	27,551 37,256 35,682 32,937 30,647 23,475 34,221 26,570 10,580	34,102 45,083 46,063 45,381 40,482 44,747 43,523 32,983 37,923	41,336 63,093 55,962 51,553 43,504 50,913 46,980 39,224 48,386	50,124 62,413 64,236 64,177 62,266 67,412 56,191 43,692	10,311 8,277 5,965 8,754 4,424 4,375 3,125 3,428 2,243	February March April May June

[†] Contains 23 delinquent registrations which cannot be assigned to any one month. †† Does not include Federal Government deliveries which are included in other years.

* Data for Jan., Feb., and March are R. L. Polk New Truck Registrations; data for April through November are the number of releases granted by W.P.B. for new trucks for civilian use; December data includes both military and civilian releases.

TOTAL TRUCK REGISTRATIONS BY STATES

Alabama Arizona Aricansas California	1029 37,832 10,606 39,732 214,033 28,501	1930 37,976 12,045 26,966 230,837 31,662	1931 33,972 12,633 31,275 245,213 32,002	1932 31,575 14,687 22,969 234,177 30,367	1933 29,838 14,569 32,980 220,067 27,433	1934 34,101 16,791 35,700 237,586 27,858	1935 38,989 17,964 40,107 253,006 28,430	1936 44,272 20,183 50,131 *1266,379 *31,930	1937 53,070 22,973 59,283 *1284,132 32,795	1938 50,780 22,998 53,789 *‡300,483 31,447	1939 54,947 24,083 60,535 *1309,855 30,638	1940 58,707 25,243 66,158 *1326,998 30,298	1941 65,909 26,689 77,191 *1350,261 31,044	1942 65,498 26,000 75,267 *1344,516 31,784
Connecticut Delaware District of Col Florida Georgia	50,006	51,196	52,227	51,388	52,564	55,878	82,232	60,653	68,070	63,910	66,273	74,456	79,256	55,378
	10,232	10,576	*9,991	*8,666	*8,485	*9,394	*9,692	*10,010	*10,314	*10,519	*11,248	*11,030	*13,969	*13,416
	15,995	16,943	18,188	18,286	18,742	17,263	17,610	19,397	18,862	14,287	13,718	13,928	13,809	14,646
	57,293	53,096	51,724	37,955	45,019	55,350	87,199	65,738	70,308	71,871	76,320	79,790	87,706	86,000
	48,543	47,119	46,264	42,050	51,212	60,262	66,079	73,289	78,803	76,154	85,520	91,321	99,506	96,655
daholifinoisndianaowa	13,676	14,551	15,435	14,030	14,884	17,881	21,371	25,882	28,208	27,809	31,380	33,538	36,515	34,500
	*203,335	207,584	201,509	177,820	*186,186	*174,265	*185,477	*208,926	*220,639	*222,582	*232,888	*228,889	*234,703	*233,386
	125,349	128,397	129,826	122,019	116,381	122,791	132,767	131,767	140,292	122,168	129,695	134,215	135,834	134,000
	69,531	72,190	78,414	74,882	69,490	75,350	80,529	82,840	86,636	*92,884	*93,139	*101,244	*106,985	*102,000
	*73,694	*83,139	*80,484	*71,778	*72,404	75,565	*80,088	*87,113	*93,046	*87,744	*98,616	102,665	113,872	119,725
Centucky	34,132	35,841	34,960	31,621	32,111	37,448	43,613	51,840	59,341	63,373	69,629	75,891	81,663	77,412
	46,303	44,697	47,783	41,853	42,007	44,779	59,398	76,251	80,630	80,167	84,475	81,793	93,305	73,638
	36,544	37,435	38,771	36,203	35,271	37,093	38,079	39,276	43,171	42,663	41,673	43,914	45,748	43,000
	38,839	37,832	36,080	41,529	34,728	45,351	48,528	53,398	52,014	53,926	58,027	59,160	60,876	60,627
	96,268	102,918	103,888	102,959	99,854	98,508	100,411	102,400	104,316	104,134	106,824	109,462	110,650	109,783
Michigan	*175,944	*167,158	*152,635	*123,273	*121,639	*123,405	*127,283	*139,520	*148,117	*113,631	*90,798	*117,500	*129,589	*131,597
Minnesota	99,696	108,070	108,435	101,650	99,130	103,882	105,861	114,448	117,632	115,970	118,227	124,602	129,710	123,213
Mississippi	32,649	33,651	*30,721	*25,164	32,924	34,115	33,308	43,357	53,072	51,486	57,097	60,927	64,119	63,500
Missouri	85,443	*91,455	*95,975	*29,285	*103,795	107,709	115,819	*128,425	*134,457	*133,686	*141,609	*152,924	*164,546	*159,342
Montana	25,102	25,619	*24,037	*20,521	*27,490	*31,087	*35,542	*39,311	*40,081	*41,138	*44,480	*47,964	*51,476	*46,695
lobraska	42,280	58,642	59,848	52,294	53,947	56,560	59,054	62,133	63,667	66,988	65,632	68,016	71,283	70,321
lovada.	6,613	6,257	6,950	6,527	5,927	6,391	6,875	*7,680	*8,092	*7,625	5,811	6,571	9,524	10,037
low Hampshire	13,980	19,028	18,671	17,378	19,872	22,382	23,455	*22,023	23,768	*23,597	*24,984	30,062	32,118	32,561
low Jersey	133,373	133,154	133,361	128,604	122,228	123,351	124,866	130,642	134,458	132,714	132,819	137,126	141,329	136,000
low Mexico	2,374	†13,700	15,884	15,020	15,290	16,112	18,245	22,731	31,117	28,915	28,488	30,090	30,806	28,000
low York	341,191	340,749	330,813	313,785	298,508	298,379	306,919	328,404	333,543	327,474	350,693	363,110	348,819	306,10
forth Carolina	52,951	56,108	54,575	50,262	49,660	54,786	57,931	65,000	73,383	74,211	81,068	87,457	96,320	95,82
forth Daketa	25,954	27,636	26,588	23,590	*25,342	26,315	28,780	29,650	32,084	33,061	34,544	37,019	40,788	41,93
Dhio	206,432	204,270	*191,929	167,492	*158,189	*159,845	*170,954	*172,273	*180,484	°177,314	*184,223	*190,654	*192,000	*160,00
Oklahoma	60,390	59,384	54,585	44,884	65,957	73,928	82,855	90,638	98,675	92,943	98,172	103,391	107,903	109,58
Pegen	21,876	22,437	22,950	34,477	32,208	41,411	42,584	49,746	60,660	59,829	62,749	67,756	75,538	75,21
Pennsylvania	217,406	218,687	219,812	216,334	219,497	215,016	229,026	249,637	257,330	255,654	269,062	263,112	274,967	274,74
Ihode Island	19,990	19,631	19,565	18,416	17,965	18,332	18,428	19,458	19,768	20,010	19,699	20,743	21,174	21,87
Jouth Carolina.	25,591	26,261	23,439	19,722	17,795	20,877	29,761	33,525	39,835	41,379	44,142	39,070	50,638	48,34
Jouth Dakota	*22,780	24,977	33,516	19,542	22,764	23,832	28,931	28,172	28,768	28,494	30,282	32,296	34,952	33,00
Fernessee Fernes	*32,734 182,957 17,000 8,559 58,680	37,823 206,757 17,809 8,226 57,307	33,976 210,991 17,577 8,463 56,633	31,434 191,462 16,098 8,309 62,344	33,848 188,676 16,348 7,924 57,266	37,755 228,276 17,103 8,612 57,268	42,031 257,055 17,587 9,031 60,376	49,368 285,839 22,000 8,682 57,689	55,736 294,639 21,094 9,029 67,547	61,724 316,757 22,432 9,042 66,410	67,053 335,467 25,209 9,576 68,723	70,667 350,208 23,584 9,828 74,720	81,022 368,863 24,206 10,327 63,594	72,00 297,52 24,90 9,85 83,04
Washington	62,348	63,188	60,062	63,826	62,548	64,321	68,657	79,500	84,577	83,204	85,494	93,395	94,772	92,00
West Virginia	40,173	40,373	39,359	32,916	33,415	27,253	29,305	38,908	44,558	43,785	48,289	51,520	49,541	49,32
Wisconsin	104,055	105,110	113,773	108,047	104,347	120,180	130,144	150,779	145,822	135,413	141,590	147,661	158,087	144,68
Wyoming	8,800	9,922	10,713	9,879	10,643	13,102	14,593	15,892	17,368	17,589	18,090	19,062	20,474	20,19

^{*} Includes busen. † Large increase due to reclassification of trucks previously carried as passenger cars. ‡ Includes light commercial vehicles registered as passenger cars.

TOTAL U. S. TRUCK REGISTRATIONS BY YEARS (1904-1941)

1904 1906 1906	410 600 1,100	% Gain 46 83	1012 1013 1014	41,400 63,800 85,600	% Gain 107 54 34	1920 1921 1922	1,006,082 1,117,100 1,375,725	% Gain 27 11 23	1928 1929 1930	3,113,999 3,379,854 3,486,019	% Gain 7 8 3	1935 1936 1937	3,655,705 3,981,755 4,107,244	% Gain 7.1 9.1 3.1
1907 1908 1909	1,700 3,100	55 82	1915 1916	138,000 215,000	59 58	1923 1924	1,612,568 2,134,724	17 32	1931 1932	3,466,571	6	1938 1939	4, 184, 109	2.0 4.3
1909	6,050	95	1917	326,000	52	1925	2,440,854	14	1933	3,227,357	-0.6	1940	4,569,537	4.8
1910 1911	10,000 20,000	100	1918 1919	525,000 794,372	61 51	1926 1927	2,764,222	13	1934	3,400,335	5.5	1941 1942	4,825,978 4,556,836	-5.8 -5.7

The Question...and the Answer

QUESTION: What piston rings are most widely used in badly tapered cylinders?

ANSWER: STEEL-VENT

QUESTION: What piston ring is surging ahead in rebored and resleeved jobs?

ANSWER: STEEL-VENT

And if you want to know why thousands of truck and bus operators, as well as car service shops, now recommend Steel-Vents whenever new rings are needed—you can have that answer, too.

In every community, from coast to coast, are operators of trucks and buses who

have proven the economy of Steel-Vents, under conditions of hardest usage. Their experiences are available to you on request, through a corps of skilled field service men.

MASTINGS MANUFACTURING COMPANY - NASTINGS, MICH. Hastings Mig. of Canada, Ltd., Toronto

Piston Rings · Piston Expanders · Valv-Rings

HASTINGS

STEEL-VENT PISTON RINGS

Tough on oil-pumping. Gentle on cylinder walls



WARNING TO FLEETS! Under present conditions it is inevitable that valves and rings will stick, carbon deposits will increase; oil passages may even clog up or become so restricted as to interfere with the normal flow of oil to vital parts.

Play safe by cleaning out your motors with Casite. Casite cleans out sludge and gum, and keeps them out; frees sticking valves and rings, and retards the formation of engine varnish.

Casite also speeds the flow of oil to close tolerance parts, thus reducing friction and wear.

A clean motor is doubly important today, because a clean motor performs better, wears less, saves gas and oil.

That's why more and more of the nation's fleets are going to Casite! Plus the fact that it has been an accepted fleet maintenance product for upward of ten years and is used today by many of the largest fleets.

THE CASITE CORPORATION, HASTINGS, MICHIGAN





CLEANS OUT MOTORS · KEEPS MOTORS CLEAN

CONTINUED FROM PAGE 41 GENERATOR TEST SPECIFICATIONS

GENER-			MAXIN	NUM OUT	TPUT			GENER-			MAXIM	IUM OUT	PUT		
ATOR MAKE AND	Field Amps.		COLD			нот		ATOR MAKE AND	Field Amps.		COLD			нот	-2-
MODEL	6 Voits	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M.	MODEL	6 Volts	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.N
GCE-4820A GCH-4801 GCH-4802 GCH-4805 GCH-4805 GCH-4807A GCH-4807A GCH-4808A GCI-4802B GCI-4802B GCI-4805A GCI-4806B GCI-4808A GCI-4808A GCI-4808A	11.66-1.84 1.66-1.84 1.17-1.29	30.0 30.0 32.0 40.0 40.0 40.0 50.0 50.0 40.0 24.0-26.0 24.0-26.0 24.0-26.0 24.0-26.0 24.0-26.0 24.0-26.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	1500 1500 1600 975 975 975 975 1025 1025 1025 2620 2620 2620 2620 2620 2620 2620 2	30.0 30.0 32.0 40.0 40.0 40.0 40.0 50.0 50.0 40.0 20.7-22.7 20.7-22.7 20.7-22.7 20.7-22.7 17.0-19.0 17.0-19.0 17.0-19.0 17.0-19.0 17.0-19.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	1700 1700 1800 1050 1050 1050 1050 1050 1050 1125 1125	GEG-5002 GEH-4806 GEW-4801 GEW-4803 GEW-4804 GEW-4806 GEW-4806 GEW-4806 GEW-4806	1.60-1.78 1.60-1.78	32.0 32.0 32.0 32.0 32.0 32.0 32.0 40.0 40.0 40.0 40.0 25.0 25.0 25.0 25.0 25.0 25.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	1165 1165 1165 1165 1165 1100 1165 1165	32.0 32.0 32.0 32.0 32.0 32.0 32.0 40.0 40.0 40.0 40.0 25.0 25.0 25.0 25.0 25.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	1420 1420 1420 1420 1420 1421 1421 1696 1696 1696 1696 1246 1256 1256 1256 1256 1256 1256 1256
CM-4816A.	3.50-3.89	21.0-23.0 21.0-23.0 21.0-23.0	8.0 8.0 8.0	2650 2650 2650	17.0-19.0 17.0-19.0 17.0-19.0	8.0 8.0 8.0	2750 2750 2750	DELCO.		-					
3CS-4892-5 3CS-4802-5 3CS-4804A-5 3CS-4804B-8 3CS-4804D-8 3CS-4804D-8 3CS-4805A-8 3CS-4805A-8 3CS-4808-8 3CS-4810-8 3CS-4812-8 3CS-4811A-8 3CS-4811A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4813A-8 3CS-4803A-8 3CS-4803A-8 3CS-4803A-8 3CS-4803A-8 3CS-4803A-8	3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 3.56-3.94 1.56-3.94 1.56-3.94 1.56-3.94 1.56-3.94 1.66-1.84 1.66-1.84	19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 19,0-21.0 28.0 28.0 28.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	2650 1565 2100 2100 2100 2100 2100 2100 2100 210	17.0-19.0 15.0 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.4 15.4-17.0 28.0 28.0 28.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	2750 2250 2250 2250 2250 2250 2250 2250	417 419 440 469 508 511 518 519 530 535 538 539 550 555 566 557 560 561 563 564 567	1.35-1.48* 1.39-1.47* 1.09-1.20* 1.78-1.92* 1.78-1.92* 1.78-1.92* 1.09-1.20* 1.09-1.20* 1.09-1.20* 1.09-1.20* 1.09-1.20* 1.09-1.20* 1.09-1.20* 1.35-1.48* 1.35-1.48* 1.35-1.49* 1.35-1.49* 3.53-3.75 3.53-3.75	24-26 24-28 40 57 80 57 80 50 40 40 24-26 24-26 24-26 24-28 13-15 14 24-28 40 24-28 38-40 24-26	13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0	1600 1100 1100 1100 800 800 800 1700 1100 11	18 18 18 18 18 18 18 18 10 18 22-24 30-32 18	13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0	3000 3000 3000 3000 3000 3000 3000 300
DJ-4809A. DJ-4809B. BDW-4803 BDW-4801A. BDW-4801 BDW-4801A. BDZ-4801C.	3.23-3.57 1.90-2.10 1.90-2.10 1.90-2.10 1.90-2.10 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.64 1.48-1.79 1.48-1.79	29.0-32.0 29.0-32.0 29.0-32.0 29.0-32.0 55.0 55.0 55.0 55.0 65.0 10.0 10.0 10.0 10.0 10.0 30.0-38.7	8.0 8.0 8.0 8.0 8.0 15.0 15.0 15.0 15.0 15.0 15.0 30.0 8.0 30.0 8.0	1880 2050 3200 3200 3200 3200 1080 1080 1080 1080 1080 1080 1080 1	25.0 8.8-10.8 26.4-29.4 26.4-29.4 26.4-29.4 55.0 55.0 55.0 55.0 55.0 30.0 40.0 10.0 10.0 30.0-38.7	8.0 8.0 8.0 8.0 8.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0 30.0 8.0 8.0 8.0 8.0	2300 2200 3400 3400 3400 3400 3400 1180 1180 1180 1180 1180 1180 1180 1	803 604 905 806 607 608 613 614 618 622 625 630 633 634 637 639 670 671	1.26-1.33° 1.26-1.33° 3.53-3.75 3.53-3.75 1.09-1.20° 1.58-1.71 1.09-1.20° 3.53-3.75 1.09-1.20°	20 28-30 33 40 40 40 40 50 40 28-32 40 40 40 40 40 40 40 40 40 40 40 40 40	13.0 13.0 13.0 13.0 7.0 7.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13	950 1000 950 950 950 950 950 1100 1100 1	22-24	7.0	120
10Z-48910 10Z-48914 10Z-48924 10Z-48924 10Z-48934 10Z-48934 10Z-48936	1 60-1 78 1 60-1 78	30.0-36.7 30.0-38.7 30.0-38.7 30.0-38.7 30.0-38.7 30.0-38.7 30.0-36.7 30.0-36.7 30.0-36.7 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	2000 2000 2000 2000 2000 2000 2000 200	30.0-36.7 30.0-38.7 30.0-38.7 30.0-36.7 30.0-36.7 30.0-36.7 30.0-36.7 30.0-36.7 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	2350 2350 2350 2350 2350 2350 2350 2350	674 677 678 679 680 682 687 683 699 691 692 693 694 695 696 697 698 699 916B 916B 916D	3.53-3.75 1.39-1.47' 3.53-3.75 1.26-1.33' 1.35-1.48' 3.53-3.75 1.26-1.33' 1.26-1.33' 1.26-1.33' 1.26-1.33' 1.26-1.33' 1.26-1.33' 1.26-1.33' 1.35-1.46' 1.35-1.46' 1.26-1.31' 1.35-1.46' 1.26-1.31'	28-30 24-26 40 40 40 33	7.0 13.0 13.0 7.0 7.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13	1000 1100 1400 950 950 950 950 950 1600 950 1250 1250 1400 951 1400 1400 1400 1250 1250	22-24 18 18	13.0	300

CONTINUED FROM PAGE 111 GENERATOR TEST SPECIFICATIONS

GENER-			MAXIN	NUM OU	TPUT			GENER-			MAXIN	IUM OU	TPUT		
MAKE AND	Field Amps.		COLD			нот		MAKE AND	Field Amps.		COLD			нот	
MODEL	6 Volts	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M.	MODEL	6 Volts	Amps.	Volta	R.P.M.	Amps.	Volts	R.P.
ELCO	-REMY	(Cont	.)					963	1.1 -1.2*	40 54	13.0 13.0	1100		********	
H	1.7-2.0 1.25-1.45* 1.7-2.0 2.7-3.0 2.0-2.5* 1.08-1.15* 1.8-2.3 1.08-1.15* 1.8-2.3 1.8-2.3 1.8-2.3 1.8-2.3 1.8-2.3 1.8-2.3 1.7-2.0 1.7-2.0 1.7-2.0 1.7-2.0 1.7-2.0 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0 1.25-1.45* 1.7-2.0	28	1 8.1-8.3	1325				963 964 9654 965W 965W 966 967R 967R 967P 968B 968H 968H 968H 968H 968H 968H 968K 968H 978E 978E 973E 973E	2.5 -3.0° 2.8 -3.5	11-13 23-26	18.1-15.8	1700 1900	7-9.5 13-16	14.2-14.8 7.7- 8.1	200 220
K	1.7-2.0	17 26 30	14.5-14.7 8.1-8.3	1250 1325 1800	28		1900	986	2.5 -3.0° 1.6 -1.7°	8-10 84	14.5-15.5	1700 1000	8-7	14.1-14.9	200
J	2.7-3.0	30 16-18	8.0 8.0 13.0	1800 2200	28 13-15	8.0 8.0 13.0	1900 2500	967V	4.0 -6.9	18-20 18-20	8.3- 8.5 8.3- 8.5	1300	9-12 9-12	7.3- 7.6 7.3- 7.6	140 140 220
	1.08-1.15	17	14.5-14.7	1650 1100	********	********	******	968B	2.5 -3.0	23-26 14-16	8.8- 9.2 15.7-16.1	1900 1700	13-16 12-14	7.7- 8.1 16.3-15.7	185
	1.08-1.15	17	14.5-14.7 8.0	1650 1450		*********		968H	2.8 -3.5	22-28 18-20	8.7- 9.0 8.2- 8.5	1800 2000	13-16 18-17	7.8-8.1 7.9-8.2	200 220
	1.8-2.3	28 26 26-28	8.1-8.3 9.0-9.4 8.6-9.0	1450	20-24	8.5-8.9	9100	968K	2.8 -3.5	18-20 18-20	8.2- 8.5 8.2- 8.5	2000	18-17 18-17	7.9-8.2 7.9-8.2	220
	3.5-4.0	22-24	8.6-9.0	1300	13.5-16.5	7.7-8.1	2100 1700	968T	2.8 -3.5	18-20 18-20 18-20	8.2- 8.5 8.2- 8.5	2000	15-17 15-17	7.9-8.2 7.9-8.2	220
	1.25-1.45	28 17	14.5-14.7	1250 1400	********			973E	1.8 -1.9	24.28	7.0	1300 1600	9-12 19-21	7.3- 7.6	140
	1.25-1.45	26 17	14.5-14.7	1250	********	*********	*******	974	1.54-1.71	21-23 54	13.0	1000	16-18	13.0	290
	1.7-2.0	28 28 17	8.1-8.3 14.5-14.7	1325 1250	*********			9788	1.5 -1.7	54 22-24 28-30	9.3- 9.6	2000 2000 1200	18-17 21-23	13.0 8.6- 8.9	216
i	1.7-2.0	28 17	8.0	1400	********		*******	977L	.00009	10 26-28	28.0	1400	01 00		****
d	1.7-2.0	28 17	8.0	1400				977K	1.53-1.67	17-19	7.0	1200 1400	21-23 13-15	7.0	180
	1.7-2.0	28 17	8.0	1400				977P	1.53-1.67	29-28 28-28 30-31	7.0	1400	21-23 21-23	7.0	160
	1.7-2.0	28 17	8.0	1400		*********		977V	1.2 -1.3*	28-28 17-20	7.0 13.0 13.0	2000 2600 1500	28-30 23-28 13-16	13.0	300 150
ļ	1.7-2.0	28 17	8.0	1400	*********	********		978A	1.63-1.67	17-19 8-10	7.0	1200 1500	13-15	7.0	12
V	1.7-2.0	28 17	8.0	1400				977J 977K 977L 977P 977V 977V 977V 978A 8M1108 8M1290 8M1321 8M1324 8M1324 8M1324 8M1326	1.1 -1.2	50 17-19	13.0	1700 2200	13-15	14.2-14.4	22
	1.7-2.0	28 18-21	8.0	1400 2400	15-18	********		SM1322	1.4 -1.4	18-18	16.1-16.5	2400 1100	11-13	15.1-15.5	26
	2.3-2.6	17-20 19-23	8.2-8.5 8.2-8.5 8.4-8.8	2400 2800	13-15 16-20	7.9-8.3 7.7-8.0 8.1-8.5	2900 3000 3100	SM1326 SM1374	1.1 -1.2	40 40 17-19	13.0	1100	13-15	7.0	12
1	2.3-2.8	19-23 19-23	18488	2800 2800	16-20	8.1-8.5 8.1-8.5	3100 3100	I SM1648	11.38-1.48*	24-28 13-15	13.0	1800 1200	18	13.0	30
	3.5-4.5	18-17	8.4-8.8 7.9-8.2 7.9-8.3 7.9-8.1 15.9-16.6	1700	10-12 13-15	7.4-7.7	1800	\$M1540 \$M1616 \$M1680	1.2 -1.3*	22-24 14	13.0	2000	18-17	13.0	21
	4.0-8.1 3.3-4.0°	18-17	7.9-8.1	2000 1400 2000 1800	11-14	7.7-8.0 7.8-7.8 18.8-18.0	2400 1760 2800			11-13 17-20	15.1-15.5 8.2- 8.5	1700	7-9.5 13-15	14.2-14.8	20
J	4.0-6.1	19-21 8-10	8.3-8.6 14.4-14.6	1800	9-12	7.3-7.6	2800 2000 1800	SM1798 SM1808 SM1884	4.4 -8.0	22-24 24-28	8.6- 9.0	2400 1400 1100	14-17	7.8-8.2	30 19 30
	4.0-6.1	18-22	8.3-8.7 7.7- 8.0	1850 1600	8-12 10-12	7.3-7.7	1 1800		G.W -B.W	19-23	8.4- 8.8	2800	16-20	8.1- 8.5	31
ļ	3.5 -4.5	18-17 18-17	7.9-8.2	1700 1700	10-12 10-12	7.3-7.7 7.5- 7.7 7.4- 7.7 7.4- 7.7	1800 1800 1800	1100004	2.3 -2.6	26-30 26-30	8.0	3400 3400	25-28 25-28	8.0	38
8 W	4.0 -8.9	18-20 6-8	8.3- 8.5 14.9-15.2	1300	9-12 4-6	7.3- 7.6 13.9-14.5	1400	1100008	2.3 -2.6	26-30 19-23	8.0	3400 2800	25-28 16-20	8.0 8.1- 8.5	36
B	3.5 -4.5	16-18	7.9- 8.3 7.9- 8.2	1500 2000 1700	13-15 10-12	7.7- 8.0	1400 2000 2400 1800	1100452	2.3 -2.8	17-20 19-23	8.2-8.5 8.4-8.8	2400	13-15 16-20	7.7- 8.0 8.1- 8.5	30
D	3.5 -4.5	15-17 15-17 15-18	7.9- 8.2 7.9- 8.3	1700	10-12	7.4- 7.7	1 1 1 1 1 1 1 1	1100458	2.3 -2.6	23-27 18-21	8.8- 9.0 8.2- 8.5	3000 2400	18-23 15-18	8.2- 8.7 7.9- 8.3	32
H	8.5 -4.5	19-22 15-17	8.3- 8.7 7.9- 8.2	2400 1700	12-15 10-12	7.6-8.0	2480 2800 1800	1100483	2.3 -2.6	23-27 15-17	8.8- 9.0 7.8-8.2	3000 1700	18-23 10-12	8.2- 8.7 7.4- 7.7	32
N	1.7-2.0 1.25-1.48° 1.7-2.0 2.3-2.6 2.3-2.6 2.3-2.6 2.3-2.8 3.5-4.5 4.0-9.1 4.0-9.1 4.0-8.1 2.5-3.2° 4.0-8.1 4.0-8.9 3.5-4.5	16-17 16-17	7.9- 8.2 7.8- 8.2	1700 1700	10-12 10-12	7.4- 7.7	1800	1101654	4.0 -6.1	19-22	8.3- 8.7 15.0	1550 2400	9-12 9-12	7.3-7.7	19
	9.9 -4.5 9.6 -4.5 2.3 -2.6	15-17 19-23	7.8- 8.2 8.4- 8.8	1700 2800	10-12 16-20	7.4- 7.7 8.1- 8.8	1600 3100	1100004 1100006 1100006 1100451 1100452 1100458 1100458 1100458 1101450 1101654 1101702 1101708	2.6 -3.1*	11-18 8-10	15.0	2400 1500	9-12 8-8	14.7-15.0	26 26 19
G	2.3 -2.6		8.8- 9.0	2400 3000 3000	13-15 18-23	77-80	3000	1101714	1.5 -1.6*	18-21 8-10	15.0 14.4-14.8	3400 1500	15-18 6.8	15.0 14.2-14.4	38
H	2.3 -2.6 4.0 -8.1	23-27 19-22	8.8- 9.0	3000 1550	18-23 9-12	8.2-8.7 8.2-8.7 7.3-7.7 7.7-8.0 7.3-7.7 8.1-8.5 8.1-8.5	3200 3200 1900	1101716 1101729 1101736		8-10 18-21	14.4-14.0	2200 3400	6-8 15-18	14.1-14.5	24
K M	2.3 -2.6	17-20 19-22	8.2- 8.5 8.3- 8.7	1550 2400 1550	13-15 9-12	7.7- 8.0	1900 3000 1900	1101744	1.5-1.65°	18-21 18-20	15.0	3400 2000	15-18 15-17	15.0	35
P	2.3 -2.6	19-23 19-23	8.4- 8.8	1550 2800 2800	16-20 16-20	8.1-8.5 8.1-8.5	3100 3100	1101744 1102402 1102403 1102404 1102405	2.8 -3.8	18-20 20-22	8-2- 8.5 8.2- 8.5 8.4- 8.6 7.9- 8.1	2000 1550	15-17	7.8-8.2 7.9-8.2 7.4-7.6 7.7-8.0	17
V	2.3 -2.6 1.5 -1.7*	17-20 54	8.2- 8.5 13.0	1000	13-15	1.1- 0.0	3000	and the second	1	17-19		1700	13-15		
Y	4.0 -6.1	19-22 19-22	8.3- 8.7 8.3- 8.7	1550 1550	9-12 9-12	7.3-7.7	1900	1102407	12.8 -3.5	18-20 18-20	8.2- 8.8 8.2- 8.8 8.2- 8.8	2000 2000 2000	15-17 15-17	7.9- 8.2 7.9- 8.2 7.9- 8.2	2
Ē	4.0 -8.1	19-22	13.0 8.3- 8.7	1000 1550	9-12	7.3-7.7	1900	1102413	12 2 - 2 2	18-20 11-13	15.1-15.5	1700	15-17 7-9.5	114.2-14.8	1 2
E	4.0 -8.1	20-22	8.4- 8.6 8.4- 8.6	1550 1550	10-12 10-12	7.4-7.8 7.4-7.8 7.4-7.8	1700 1700	1102501 1102514 1102520 1102560	2.5 -3.0° 2.5 -3.0°	11-13	16.1-15.5 15.1-15.8	1700 1700	7-9.5 7-9.5	14.2-14.8 14.2-14.8	2
	4.0 -5.9	18-20	13.0 8.3- 8.5	1300	9-12	7.3-7.8	1400	1102660 1102667 1102670	1.8 -1.8	30*	8.0	1700 1700	*********		
r	4.0 -5.9	11-13 18-20 19-21	15.1-15.5 8.3- 8.5 8.4- 8.6	1700	7-9.5 9-12	14.2-14.8 7.3- 7.8 7.8- 7.8 14.2-14.8 7.7- 8.0 7.7- 8.1	1400 2000 1400 2000 2000 1800	1102673	11.76-1.88	30° 30° 30°	8.0	1700 1700			
X	2.5-3.5°	19-21	15,1-15.5	1800 1700	11-14 7-9.5 13-15	7.8- 7.8 14.2-14.8	2000	1102674	1.76-1.88	30*	8.0	1700 1700	********		
2	2.8 -3.5	17-20 23-26	8.2- 8.5 8.8- 9.2	1900	1 13-16	7.7- 8.0	1900 2200	1102676	1.76-1.88	30° 26°	8.0	1700 1450			
Ĝ	2.8 -3.5	18-20 18-20	8.2-8.5	1900 1900 2000 2000 2000 2000	16-17 15-17	7.9-8.2	2200 2200	1102678	1.76-1.88	30*	8.0	1700 1700			
E	2.3 -2.6 2.3 -2.6 4.0 -8.1 4.0 -8.1 4.0 -8.1 4.0 -8.1 1.5 -1.7 4.0 -8.1 1.5 -1.7 4.0 -8.1 1.5 -1.7 4.0 -8.1 1.5 -1.7 4.0 -8.1 1.5 -1.7 2.5 -3.0° 4.0 -8.9 2.8 -3.5 2.8 -3.5	18-20	8.2-8.5 8.2-8.5 8.3-8.7 7.9-8.1	2000	15-17 15-17 9-12	7.7-8.1 7.9-8.2 7.9-8.2 7.9-8.2 7.3-7.7 7.5-7.8 8.2-8.7 8.1-8.5 8.1-8.5	2200 2200	1102689 1102690 1102953	1.67-1.82	30"	8.0	1750 1750			: :::
Y	4.0 -6.1	19-22 15-17	7.9-8.1	1400	11-14	7.5- 7.8	1900 1750	1102955	.11.6-1.7*	18*	15.0 15.0	1480			
Ď	2.3 -2.6	23-27 19-23	8.8- 9.0 8.4- 8.8 8.4- 8.8 8.4- 8.8	3000 2800	18-23 16-20	8.1-8.5	3200 3100	1102957 L102961	1.6-1.7	18"	15.0 15.0	1480 1480 1650			
0	2.3 -2.6	19-23 19-23	8.4-8.8	2800	16-20 16-20	8.1-8.5	3100 3100	1105201	1.7 -2.0	17	14.5-14.7	1650 1400 1400			
F	2.3 -2.6 3.5 -4.5	22-25 15-18	7.9- 8.3	2000	17-20 13-15	8.1- 8.5 7.7- 8.0	3200 2400	1105530	1.7 -2.0	28 28 28	8.0	1400 1400			
	11 55-9 71	40	7.5	675					1.25-1.46	17	14.5-14.7	1250			



A HUSKY TASK FORCE OF FEDERALS PROVES ITS METTLE IN THE BATTLE OF STEEL

MESABI—GUYUNA—GOGEBIC— MENOMINEE—strange sounding, yet mighty important names in the fierce battle of steel now waged on the work fronts

of America. From the great open pit iron mines of these famous ranges comes a gigantic flood of ore, feeding the Bessemer and open hearth furnaces of our war girded industry.

It's a production flood—swelling to 90 million tons or more for 1942. This all-time high in iron ore output tops the previous war peak of 1916 by over 35%. To set this record, unsung heroes of these pit mines

have been toiling and sweating 24 hours a day, six days a week, to make sure our industrial effort

shall not fail—to serve the ends of swifter victory. Into the production breech have gone fleets of husky ore trucks to match the back-breaking performance of both producers and miners with a

brand of consistent, round-theclock dependability that has won the everlasting respect and esteem of men who have the "know how" to really deliver the goods.

Federal's part in helping speed this essential work is added evidence of the inherent qualities of heavy duty, all-truck performance so consistently built into its transport units of varying tonnage capacities. Again

we repeat: "Toss the Tough Jobs to Federal!" FEDERAL MOTOR TRUCK CO., DETROIT, MICH.



FEDERAL TRUCKS

Since 1910 ... Known in Every Country - Sold on Every Continent

GENERATOR

CONT'D FROM P. 112

TEST SPECIFICATIONS

GENER-		5	MAXII	NO MUN	TPUT		
ATOR MAKE AND	Field Amps.		COLD			нот	
MODEL	e Volts	Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M
DELCO	-REMY	(Conf	.)				
105727 105732 105733 105734 105735 105738 105740 105740	1.25-1.45*	17	14.5-14.7	1250			
10573Z 105733	1.2 -1.46	17	14.5-14.7	1250 1250			
05734	1.25-1.45° 1.25-1.45°	17	14.5-14.7	1250			
05735	1.2-1.45	17	14.8-14.7	1250 1250			
08740	1.2- 1.4	17	14.5-14.7	1250		*********	******
08741 05742	1.2 -1.4*	17	14.5-14.7	1250		********	
08744	1.2 -1.4	17	14.5-14.7	1250			
05747	1.2 -1.4° 1.7 -2.0	17	14.5-14.7	1250	*********		
05747 08752 05783	89 801	26 5-7	8.1- 8.3 26.0	1325	4.6- 6.5	28.0	2000
05754	.84 .921 .84 .921 .83 .895 .63 .895 1.25 1.45*	6-8	34.0	1800			
05754 05755 05756 05756 05760 05776	.83895	8-8 5-7	34.0 28.0	1800 -	4.5- 8.5	28.0	2000
05760	.6369	5-7	28.0	2000	4.5- 6.5	28.0	2000
10776 15778	1.25-1.45*	17	14.5-14.7	1250 1250	*******		
05851	1.25-1.45° 1.82-1.94	40 25*	8.0	1850		********	******
15854	1.70-1.90 1.82-1.94	25*	8.0	1150	*******	*******	
6859	1.70-1.90 1.53-1.67	40 25*	8.0	1850 1150	*********	********	*****
16252	1.63-1.67	17-19	7.0	1200	13-16	7.0	1200
6254	1.5 -1.7 1.53-1.67	30-31 17-19	7.0	2000 1200	28-30 13-15 13-15	7.0 7.0 7.0	2100 1200 1200
6255	1.53-1.67	17-19	7.0	1200	13-15	7.0	1200
15851 15854 15856 15859 16825 16252 16253 16254 16255 16431 16451 16452	1.8 -2.0 1.2 -1.3°	35 8	13.0	1040 640	********		*****
6452	1.2 -1.3	18	15.0	1050	*********		
06576	1.2 -1.3° .9198	8 35	13.0	1400	********		
		30	0.0	1400	********	*******	
06577 06578	.9198	35	8.0	1400	********		
06579 06580	.9198	35 35	8.0	1400 1400	********	*******	
6580 6582	.9198 1.5 -1.7 1.5 -1.7	35	8.0	1400	*********	*********	
6583	1.5 -1.7	40 40	7.5	1080	********		
6584	1.5 -1.7	40	7.5	1080	*********		******
6585 6586	1.54-1.67	40	7.5	1080		*********	
6587	1.54-1.67	40	7.5	1390	*********	*******	
6589 6590	1.77-2.0	30	8.0	960		*********	
6591	1.54-1.67	50	7.5 7.5	1380 1400	********		
REG3	.9198	35	8.0	1400	*********		
6627	1.2 -1.3° 1.20-1.27°	25 25	13.0 13.0	1300 1200		********	
6628 6627	1.20-1.27*	25	13.0	1200			
6629	1 9 -1 90	25	13.0	1300			
6630 6631 6632	1.20-1.27° 1.20-1.27° 1.20-1.27°	25	13.0	1200 1200		********	
6632	1.20-1.27*	25	13.0	1200		*********	
16633 16635	1.2 -1.3°	25	13.0	1300 1200			
6636	1.20-1.27° 1.20-1.27°	25 25 25 25 25 25 25 25 25 25 25 25 25 2	13.0	1200			*****
16637 16638	1.2 -1.3° 1.2 -1.3°	25	13.0 13.0	1300			
06639	1.2 -1.3	25	13.0	1300	*******	1	
06640	1.2 -1.3*	25 25	13.0	1300			
06842	1.2 -1.3	25	13.0	1300 1300	*******		
6643 6651	1.2 -1.3	25	13.0	1300			
	1.20-1.27*	25	13.0	1300	*********	********	,
06653	1.2-1.27*	40	13.0	2300			
)6654)7013	1.20-1.27°	25	13.0	1300			
7001	1.2 -1.3	40	13.0	1250	*********	*********	
7002 7003	1.3 -1.5° 3.5 -3.7	24-26 28-32	13.0	1600 1000	18 22-24	13.0	3000
7004	1.2 -1.4	40	7.0 13.0	1250	44-44	7.0	1200
7005	11.25~1.33	40	13.0	1250			
7008	3.5 -3.7 3.5 -3.7	40	7.0	950 950		*******	
	3.5 -3.7 3.5 -3.7	40	7.0 7.0 7.0	950			
701Z	1.26-1.33°	28-30	13.0	1000 1250	22-24	7.0	1200
7013	3.5 -3.7	40	13.0 7.0 13.0	950		*********	
7014	1.4 -1.5° 1.2 -1.3°	13-15	13.0	1200 1250	10	13.0	3000
7017	1.1 -1.25	14	26.0	1000	*********	*********	
7018 7020	1.3 -1.5*	24-26 24-26	13.0	1600	18	13.0	3000
7022	1.48-1.49*	18	13.0	1800 1100	18	13.0	3000
7028	11.26-1.33*	40	13.0	1250	*********		
7030 7033	1.38-1.48 1.26-1.33*	19-21	17.0	1200 1250	15-17	15.9-16.4	1400
	.7884: .7884: 1.1 -1.2°	25	35.0	1450	*********	*********	
7203	1.1 -1.20	25 40	35.0 13.0	1450 1100			
7501	1.78-1.92	57	13.0	800	57	13.0	3000
7502	.47531	40	35.0	1050			
7507	.47531 1.8 -1.9°	57	35.0 13.0	1050			*****
7509	1.8 -1.9	86	13.0	800	*********	*********	*****
	1.0 -1.0	00	13.0	900	********	********	

CHARGING CONTROLS

UNIT	CUT-	LAY	CUR	RENT		TAGE LATOR
MODEL NUMBER	Closing Volts	Opening Amps.	Point Open (Inches)	Current Setting (Amp.)	Voltage Closed C Open Cl Volts-Poin	reuit (*)
AUTO-LITE					70°F.	110°F.
CB-4012. CB-4013. CB-4014. CB-4014. CB-4014. CB-4021. CB-4025. RA-4004. TC-4302A. TC-4302A. TC-4302A. TC-4302A. TC-4317A. TC-4320B. VRB-4002C. VRB-4004B. VRB-4002C. VRB-4004C. VRB-4004C. VRB-4008A. VRB-4001A. VRD-4001B. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001A. VRB-4001B. VRB-4004A. VRB-4004B. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006A. VRB-4006C. VRB-4006A. VRB-4006C.	5.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 13.0-14.5 6.5-7.2 13.0-14.5 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.5-7.2 6.4-7.0 6.	.5.0.5.5.5.5.5.0.0.0.0.0.0.0.0.0.0.0.0.	*********	39-41 24-28 24-28 24-28 21-23 21-23 21-23 31-33 24-28 31-33 24-28 49-51 14-16 19-21 22-27 54-56	8.2-8.7* 8.2-8.7* 8.2-8.7* 8.2-8.7* 14.3-14.6+ 7.3-7.6+ 7	7.9 6.4° 7.9 8.4° 14.1-14.4° 7.9 7.2-7.5° 7.2-7.
265B 265G	7.0- 7.6	0-3.0		*******		
2668	6.3-6.9 6.3-6.9 6.3-6.9 28.0 28.0 7.0 13.5	0-3.0 0-3.0 0-3.0 0-2.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0 0-3.0	.015 .015	40 18 50	8.3- 8.7° 8.3- 8.7° 8.3- 8.7°	15.0° 15.0° 15.0° 15.0° 8.5° 8.5° 7.7- 8.2° 7.7- 8.2° 7.7- 8.2° 7.7- 8.2° 30.0° 8.5°



MERGENCY calls on wrecking assignments send these Federal C-2 Wreckers to the injured planes pronto! They must hurry across the roughest kind of fields, since they are being used all over the world, wherever American bombers are based. Because they are equipped with Cleveland Pneumatic shock absorbers, these huge trucks can withstand these extra-tough operating conditions.



CLEVELAND PNEUMATIC UNITS OFFER THE SAME PROTECTION FOR FLEETS

Our shock absorbers will give the same sturdy performance on your trucks and buses. Both hydraulic and pneumatic, these units readily absorb shock and prevent recoil. Thus they save tires, lessen driver fatigue, reduce wear, and give a smooth cushioned ride for the passengers or cargo. Built with precision craftsmanship to close tolerances, these units, if properly serviced, will last as long as the vehicle. Send for our free booklet, "Meet the Judge." Full of illustrations and diagrams, it tells how our units will protect your fleet.



Cle-Air units are of the hydraulic-pneumatic type, identical in operating principle with the world-famous Aerol landing gear for airplanes.

THE CLEVELAND PNEUMATIC TOOL COMPANY

PURCLATOR FIGHTING FRONT ... On every front... on land, sea, and in the hir... Purclator oil filters and filter elements do their part. offset America's tanks, jeeps, planes, naval vessels, merchant marine, as well as other mechanised equipment, from damage by dirty oil. ... OR HOME FRONT Purolator filters and elements guard the home front, too . . . ban essential trucks and buses. oil from America's Dirty oil ruins engine parts. Clean Reeps engines healthy. Give your units military care. Keep oil clean Keep it clean with Purolator. change the Every time the oil shows dirty on the dipest oil and put in a new, genuine Purolator of I once. Purolator Products, Inc., Newark, N. element at leader of the oil filter industry. KEEP IT CLEAN PUROL

CHARGING CONTROL

TEST SPECIFICATIONS

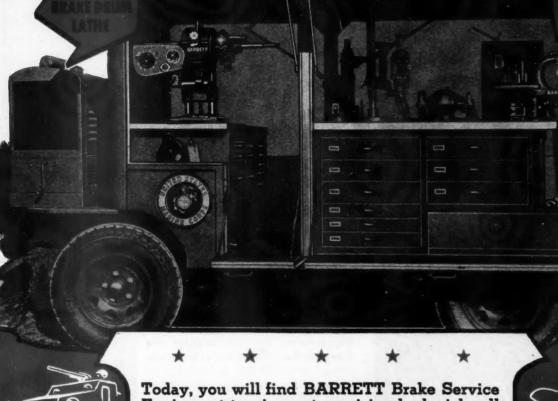
CONTINUED FROM PAGE 114

UNIT		LAY	REGUI	RENT	VOL1 REGUL	
UNIT MODEL NUMBER	Closing Voits	Opening Amps.	Point Open (Inches)	Current Setting (Amp.)	Voltage Closed C Open Ci Volts-Point	Setting irouit (†) rouit (*) ts Open (*)
DELCO-REI	MY (Co	nt.)			70°F.	150°F.
DELCO-REI 5873. 5576. 5577. 5579. 5580. 5	13.5 7.0 13.5 7.0 13.5 6.3-6.9 6.3-6.9 6.9-7.6 12.8-14.4 6.9-7.6 13.5 13.5 6.5-6.9 13.5 13.5 6.5-6.9 12.8-14.4 6.9-7.8 6.3-7.8 12.8-14.4 6.9-7.8 6.3-13.5 12.8-14.2 12.8-14.3 12.8-14.3 12.8-15.4 12.8-15.4 12.8-16.7 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4 12.4-13.4	0-3.0	.018 .018 .018 .018 .018 .018 .018 .018	19-18 24-28 19-21 28-23 7-9 24-38 24-25 34-38 29-31 14-16	7.0° F. 8.3-8.7' 8.3-8.7' 8.3-8.7' 7.0-7.4' 14.9-16.0' 7.9-7.4' 14.2-16.0' 7.2-7.6' 8.3-8.7' 14.2-16.0' 7.2-7.6' 14.2-16.0' 7.2-7.6' 14.2-16.0	18.0° 18.0° 18.0° 18.0° 18.0° 18.0° 18.0° 18.0° 7.7-8.2 7.7-8.2 7.7-8.2 18.0° 7.18.0° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.0° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 7.8° 18.1° 1

DISTRIBUTOR SPECIFICATIONS ON PAGE 118

AY THIS

BARRETT BRAKE SERVICE EQUIPMENT Has Gone to War!



Today, you will find BARRETT Brake Service Equipment turning out precision brake jobs all over the world — In the shops of the Army, Navy, Marine and Air Corps Training Centers... In Mobile Machine Shops, over here and on the fighting fronts everywhere... In Brake Service Shops here at home, keeping all mobile fighting equipment and essential civilian transportation rolling safely along to victory.

The Barrett Plants are working full-speed to furnish brake service tools and equipment to our Armed Forces, and will continue to do so until we win this war. This "all-out" effort has limited the sale of Barrett Equipment to the trade, and makes necessary the preservation of brake equipment now in use. Our service department can help you prolong the life of your equipment. Write us for reconditioning estimate, and we will make every effort to help you.



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The World's Finest Brake Equipment
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ELECTRICAL TEST DISTRIBUTORS SPECIFICATIONS

UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (Oz.)	Centri Adva Eng. deg.	& R.P.M.	Rotation Viewed From Top	UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (Oz.)		AR.P.M.	Rotation Viewed From Top	UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (0z.)	Adn Eng. deg	rifugal vance . 4 R.P.M. Maximum	Rotation
GB4011 IGB4304B IGB4309A IGB4339A IGB4320 IGB4323 IGC4064D IGC4064D IGC4064 IGC4064 IGC4064 IGC4214A IGC4214A IGC4227C IGC4227C IGC4227C IGC4227C IGC4227C IGC4227C IGC4227C IGC4227C IGC4227C IGC4236A IGC4253B IGC4253B IGC4253B IGC4253B IGC4253B IGC4253B IGC4253B IGC4253B IGC4253B IGC4276A IGC4276A IGC4276A IGC4278A IGC4278A IGC4278A IGC4278A IGC4278A IGC4278A IGC4278A IGC4278A IGC4278A IGC4283 IGC4284 IGC4283 IGC4284 IGC4283 IGC4284 IGC4283 IGC4284 IGC4283 IGC4284 IGC4283 IGC4284 IGC4284 IGC4284 IGC4285	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20	0@600	31 @ 2400 22 @ 2300 12 @ 1300 12 @ 2300 32 @ 2900 17 @ 2400 18 @ 2000 22 @ 2400 12 @ 2300 12 @ 1300 12 @ 2300 12 @ 2300 12 @ 2300 12 @ 2300 14 @ 1800 22 @ 2300 12 @ 2300 22 @ 2300	CCW CCW CCW CCW CCW CCW CCW CCW CCW CCW	IGC4285A IGC4286 IGC4407D IGC4408 IGC4408 IGC4409A IGC4418 IGC4501-1 IGC4502-1 IGC4502-1 IGC4501-2 IGC4601-2 IGC4601-1 IGC4601-1 IGC4601-1 IGC4701-1 IGC4701	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20	0@550 0@700 0@600 0@700 0@500 0@700 0@530 0@530 0@530 0@530 0@550	12@1800 12@1800 12@1800 25@3300 22@2400 25@3300 24@2700 24@2700 17@2400 17@2400 17@2400 17@2400 17@2400 12@1800 12@1800 12@1800 22@300 30@2750 25@3100 25@3100 25@3100 25@3100 25@3100 25@3100 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@310 26@3	CW CW CW CCW CCW CW CW CW CW CW CW CW CW	IGS4108 IGS4108-1 IGS4108-1 IGS4108-1 IGS4108-1 IGS4109-1 IGS4109-1 IGS4109-1 IGS4109-1 IGS4111-1 IGS41112-1 IGS41113-1 IGS4113-1 IGS4122-1 IGS4202-1 IGS4202-1 IGS4202-1 IGS4203-1 IGS4203-1 IGS4204-1 IGW40058 IGW40058 IGW40058 IGW40058 IGW40058 IGW40051 IGW4017 IGW4015 IGW4105 IGW4105 IGW4105 IGW4105 IGW4106 IGW4106 IGW4110	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20	1@700 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@710 1@800 1@800 1@850	20@2100 18@3000 12@1800 14@2000 12@1800 12@1800 12@1800 20@2800 20@4800 30@3000 17@2400 30@2850 22@2400 10@1400 18@2600	GW GW GW GW GW GW GW GW GW GW GW GW GW G

CONTINUED ON PAGE 120



Champ-Items No. 407 Oversize and Standard Rear Wheel Studs, for trucks—used when threads are stripped or stud is broken off; or when wheel flange holes and axle flange holes are worn. Made of high tensile strength steel. (See your Jobber for lists of sizes).

List price..... 20c to 35c each



Champ-Items No. 949 Self-threading Oversize Drain Plugs for all popular makes of cars and trucks. Here is a real life-saver when drain plug is stripped or lost.

DIL PAN

(Pat. No. 2,257,441)

No. 949A—½" Oversize for Chevrolet, Pontiac, Oldsmobile, and GMC truck List 30c each No. 949B—58" Oversize for Buick, Hupmobile, and Packard List 35c each

No. 9496—""" Oversize for Oldsmobile, LaSalle and GMC truck...... List 35c each

No. 9496—¾" Oversize for Ford, Studebaker, and Cadillac List 35c each

Champ-Items No. 951 Radius Arm and Brake Silencer for Chevrolet knee-action models 1934-38 and Pontiac 1934-36. Eliminates all rattle and prevents further wear by applying constant pressure to arm and brake plate. Can be installed in a few minutes. (U. S. Patent No. 2147178).

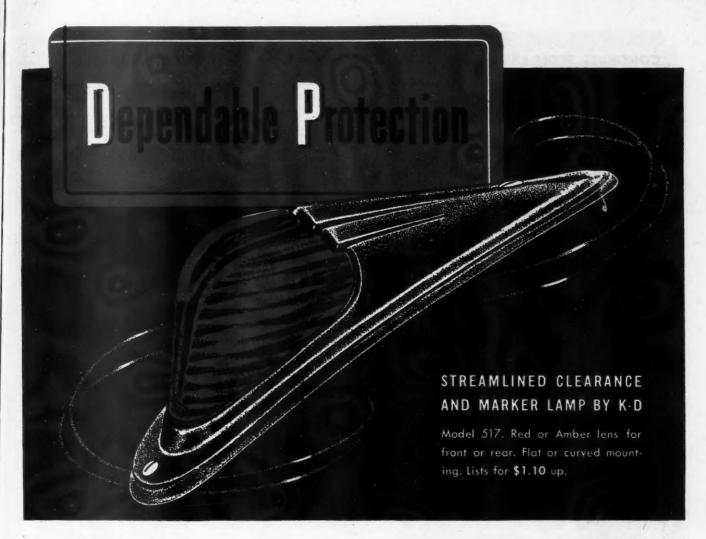
List price......\$1.60 per pair



CHAMP-ITEMS, Inc.









GOING and COMING



• Since the day this marker lamp was introduced it has been the choice of those who want safe-sure-dependable lighting.

And no wonder! Here's a marker lamp that combines beauty and ruggedness-a lamp that will improve the appearance of your equipment and also deliver the maximum in trouble-free, dependable service. It was designed to "take it"-and it does! It has a moulded gasket to keep out dust, moisture and corrosion-a big husky lens of exceptional brilliance—a body of tough, heavy metal. The result is a lamp that exceeds S.A.E., I.C.C. and I.E.S. standards.

Remember, there's a K-D lamp to fit most needs. Discuss yours with Lighting Headquarters—your K-D Jobber. He knows lights and lighting requirements. He has the right light, for the right job-at the right price.

THE K-D LAMP COMPANY . CINCINNATI, OHIO



K-D LIGHTING The Right Light for the Right job



CONTINUED FROM PAGE 118 DISTRIBUTOR TEST SPECIFICATIONS

DELCO-REMY

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UNIT MODEL NUMBER

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17-21 17-21

Centrifugal Advance Eng. deg. & R.P.M.

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28@4000 28@3800 27@2400 27@2400 27@2400 27@2400 27@1800 17@2200 22@2400 22@1800 22@240 22@24 22@24

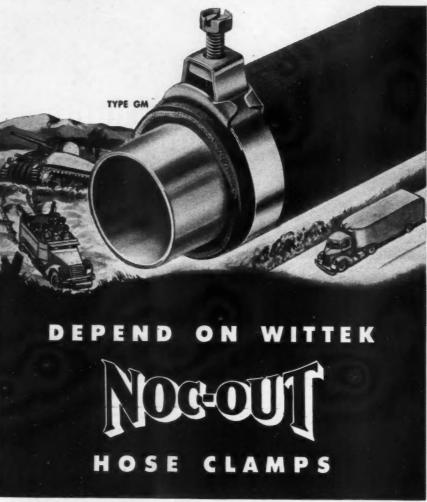
16@2200 14@2200 22@1800 22@1800 22@1800 23@2240 24@1800 27@1800 20@2000 20@2000 20@2000 20@2000 24@1400 24@1400 24@1600 24@200 24@200 24@200 24@200 24@200 24@200 24@200 24@200 24@200 24@20 2

12@1 32@2 12@1

At Start | Maxim

UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tonsion (Oz.	Centril Adva Eng. deg. d At Start N	R.P.M.	Retation Viewed Frem Top	UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (Oz.	Eng. deg.	rifugal ance & R.P.M. Maximum	Rotation
AUTO IGW4110B IGW4110C IGW4114A IGW4114B IGW4114C IGW4114C IGW4114C IGW4114E IGW4118A	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20	0@600 0@550 0@600 0@800 0@800 0@800 0@600		CW CW CW CW CW CW	IGW4123 IGW4123B IGW4127 IGW4129 IGW4139A IGW4137 IGW4138 IGW4147 IGW4154 IGW4158 IGW4159	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20	0@600 0@600 0@600 0@600 0@700 0@700 0@600 0@800 0@700	12@1800 12@2300 15@2400 15@3000 28@3400 24@2000 24@2000 21@2800 24@2000 24@2000 26@2900	CW CCW CCW CCW CCW CCW CCW CCW CCW CCW

UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (Oz.)	Eng. deg.	rifugal ance . & R.P.M. Maximum	Rotation Viewed From Top	UNIT MODE NUMB
IGW4123 IGW4123B IGW4127 IGW4129 IGW4129A IGW4137 IGW4138 IGW4147 IGW4154 IGW4158 IGW403-1	.020 .020 .020 .020 .020 .020 .020 .020	17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20 17-20	0@600 0@600 0@600 0@600 0@700 0@700 0@600 0@600 0@700	12@1800 12@2300 15@2400 19@3000 28@3400 24@2000 24@2000 14@2800 24@2000 24@2900	CW CCW CCW CCW CCW CCW CCW CCW CCW	DEL 6222M 622R 623D 623G 623H 623H 623K 623P 623P 623F 625F
						625G 825H 625J 625M 632S 640C 640L 640Z 642S 642S 643F 643F 643K
						844M 844S 844X 845E 845G 845J 845K 646S 846T 645V 646Y
						645Z 647D 647F 647H 647H 647K 647L 649C 649E 649F 849G 649N 849R
N W	/1	TT	EK			649T 649U 649V 649W 649X 649X
OU	1					000H 096D 000F 400F 4119 4126 4127 4128 4130 4140
LAN	A P	5				4182 4154 4171 4172 4173 4174 4176
industry. leak-proof iginal equ For Rac rakes and nections. 4305-15 V	of ho iipme diato d Hig Witte W. 24	se ent or, gh ek th	Pressur ments.	P – For I	ire-	4178 4177 4186 4194 4194 4206 4206 4210 4213 4223 4223 4223 4223 4223 4223 4233 8M1141 8M1243 SM1282 SM1310 SM1328 3M1403
N	0	C-	01	UT		SM1540 SM1659 SM1693 SM1882 SM1886





Type A-Adjustable For Replacement.

The standard of the industry. Quicktightening, perfect leak-proof hose connections, for original equipment and replacement. For Radiator, Heater, Booster Brakes and High Pressure hose connections. Wittek Manufacturing Co., 4305-15 W. 24th Place, Chicago, Ill.



Type HP-For High Pressure Require-

CONTINUED ON PAGE 122



CLEAN ENGINES

AXIMUM PERFORMANCE at minimum expense . . . And the most important means to this end is a clean engine.

National SAVIT Service cleans motors for maximum mileage and maximum performance, keeps oil passages open, retards the formation of

harmful deposits, and extends the useful life of all moving motor parts,

Trucking companies, bus operators, contractors, delivery companies, numbering into the hundreds have proved in actual experience the tremendous practical value of National SAVIT Service and the National Periodic Inspection Program.

Write today for free samples of National Periodic Inspection Service forms... and with them the complete story of National SAVIT Service.



NATIONAL EN-AR-CO MOTOR OILS and LUBRICANTS NATIONAL WHITE ROSE GASOLINE

THE NATIONAL REFINING COMPANY . CLEVELAND, OHIO Cleveland . Indianapolis . Chicago . Peoria . Omaha . Kansas City . Memphis East of Ohio . . . The Globe Refining Company, Cleveland, Ohio

CONTINUED FROM PAGE 120 DISTRIBUTOR TEST SPECIFICATIONS

UNIT MODEL NUMBER	Contact Point Opening Bresker Arm	Centrifugal Advance Eng. dog. & R.P.M At Start Maximum	Rotation Viewed From Top	UNIT MODEL NUMBER	Contact Point Opening	Breaker Arm Tension (Oz.)	Centri Adva Eng. deg.	& R.P.M.	Rotation Viewed From Top
	018-024 17-1 .018-024 17-1 .018-024 17-2 .018-024 17-2 .018-024 .018-024 .018-024 17-2 .018-024 17-2 .018-024 17-3 .018-024 17-3 .018-024 17-3 .018-024 .018-024 .018-024	21 2@400 22@2400 3@500 20@2000 22@700 28@2100 0 13%@800 50@3800 23 2@400 24@1800 23 2@400 20@1600	CW CW CW CW CW CW CW CW	1110021 1110022 1110025 1110027 1110030 1110031 1110032 1110033 1110034 1110039 1110041 1110043	.018024 .018024 .018024 .018024 .018024 .018024 .018024 .018024 .018024 .018024	25 17-21 17-21 17-21 17-21 17-21 17-21 17-21	2@700 2@600 2@400 2@400 2@600 3@500 2@600 2@600 2@600 3@600	14@2600 27@3200 18@2200 26@2300 34@3200 34@3200 22@2400 22@2200 20@2600 17@2200	CCW CW CW CW CCW CW CCW

Denote Black Constitute	
THE ONE BRAKE and CLU WITH SUCRY	MACHINE
THE GOOD GLU	Ten al
BRAKE CONT	hing.
WITH JOST	
Chicago APEX	
WORLD'S FINEST FOOT POWER	
RIVETING MACHINE	

ing-refacing department. Every known **TESTED AND APPROVED FOR** U. S. ARMY AND NAVY USE QUICK DELIVERY!

* SET BACK DELINER... Full vision clearance. Motionless, ad-justable knockout punch. Built-in old rivet collector.

Relines brakes-refaces clutches with

original factory accuracy. Handles any size job from the smallest to the largest-

passenger car, truck, bus, army and airplane brakes using tubular rivets. Truck

fleet operators find that this heavy, powerful relining machine does the job better, quicker and with less effort. Delining, drilling, countersinking, riveting, straightening and grinding is accomplished without the operator leaving the machine. Actually, it's a complete relin-

labor saving feature is incorporated in

it's design. Write for catalog of the complete "Chicago" line.

* LOW NEAD . . . Specially designed to facilitate work even on small diameter bands. * SHOE STRAIGHTENERS... Built in

* DRILLING UNIT . . . Two-speed, V-belt drive, no hand pressurerequired, foot operated.

★ GRINDING UNIT... Fully machined, large table, 6¼" cushioned abrasive drum.

★ CAPACITY . . . Up to ¼' diameter tubular or solid rivets. * POWERFUL... New toggle lever design. lever design.

** QUIET... No noisy clatter.

9610 W. JACKSON BLVD., BELLWOOD, ILL. (Chicago Suburb)

AND MACHINE CO.

MODEL	nin the	aker nion	Eng. deg	Eng. deg. & R.P.M.					
HOMBEN	828	44	At Start	Maximum	\$ \$ E				
1110044	.018024		2@500	38@2400	CW				
1110045	.018024	******	1.7@600	50@3800	CW				
1110048	.018024	17-23	2@400	18@ 2200	CCW				
1110040	.018024		2@500	38@2400	CW				
1110052 1110053	.018024		4@800	37@3100	CW				
1110053	.018024		2@600 2@600	16@2200	CM				
1110056	.018024		2@600	22@2200	CCW				
1110057	.018024		2@600	20@2350 22@2200	CCW				
1110059	.018024		3@500	34@3200	CCW				
1110061	.018024		4@800	37@3100	CW				
1110082	.018024		4@800	37@3100	CW				
1119064	.018024		2@400	22@2400	CW				
1110068	.018024		3@500	34@3200	CW				
1110070	.018024		2@400	20@1600	CW				
1110071	.018024		2@600	20@2800	CW				
1110074	.018024		2@400	20@1600	CW				
1110075	.018024	17-23	2@400	32@3400	CW				
1110079	.018024		3@500	34@3200	CW				
1110082	.018024		2@600	20@2600					
1110083	.018024		2@600						
1110086	.018024		2@600						
1110088	.018024		2@700						
1110089	.018024	17-23	2@500						
1110090	.018024		1@000						
1110094	.018024		2@600						
1110095	.018024		2@600						
1110098 1110100	.018024	17-23	2@400	24@1800	CW				
1110125	010 024	17-23	90700	94/20000					
1110126	.018024		2@700 2@400						
1110133	.018024		2@400		CW				
1110135	.018024		2@400						
1110136	.015021		1@600						
1110137	.018024	17-23	2@400	32@2000					
1110204	.018024		2@000						
1110209	.018024		2@600						
1110402	.018024		2@600						
1111201	.018024	17-23	2@500	20@2200					
1111204	.018024		2@490	24@1400	CCW				
1111205	.018024		2@400	14@1850	CCW				
1110509	.018024		2@800	9@2000	CCW				
1110510	.018024		2@600	20@2400	CCW				
1110511	.018024		3@800						
1111204	.018024		2@400						
1111403	.018024		1@600						
1111404	.018024		2@400						
1111405	.018024	17-23	1@600	20@2000	CW				

Centrifugal Advance

STARTERS

ELECTRICAL TEST SPECIFICATIONS

WODEL	LC	CK TE	EST	N	O LOA	D
NUMBER	Volts	Amps	Torque	Volts	Amps	RPM
AUTO	-LIT	E				
MAB-4028. MAB-4030. MAB-4037. MAB-4071. MAB-4071. MAB-4072. MAB-4093. MAB-4094. MAB-4093. MAJ-4037. MAJ-4037. MAJ-4040. MAJ-4040. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006. MAJ-4006.	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	582 582 582 582 582 582 582 582 582 580 550 550 380 440 440 440 540 540 540	15.8 15.8 15.8 15.8 15.8 15.8 15.8 15.8	5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	60 60 60 60 60 60 60 60 67 67 67 70 35 35 35 35 65 65 65	3700 3700 3700 3700 3700 3700 3700 3700

CONTINUED ON PAGE 124



TOUGHTRUCKS for TOUGHJOBS! Kenworth Builds for Victory

WHETHER it's a tough engineering problem or a battle for increased production on vital Army contracts, the men of Kenworth welcome it, attack it with enthusiasm, and conquer it.

In years past, Kenworth has manufactured custom-built trucks, buses, trailers to fit specific needs of customers and localities, individually designed in many cases to solve special problems of operation. Because all Kenworth equipment is built to operate at low cost and high performance over a long period of time, these trucks and buses are

doing their jobs—and will continue to do their jobs—on America's many war production fronts. In the forests and the mines, on the highways and city streets, Kenworth equipment is helping to keep America rolling... fighting fire, transporting oil, lumber, livestock, ore, produce of all types.

Today, Kenworth is principally engaged in Army production—important work about which we cannot say much, as you will understand. But this we can say—Kenworth has mobilized every bit of experience, all its resources, all its energy to build for Victory.

KENWORTH

TRUCKS * BUSES * TRAILERS * FIRETRUCKS

FACTORY AND HOME OFFICE: SEATTLE

Dealers or Representatives in Tacoma, Portland, Spokane, San Francisco, Los Angeles, Salt Lake, Vancouver, B.C. and Honolulu, T.H.

STARTER TEST SPECIFICATIONS CONTINUED FROM PAGE 122

MODEL		O LOA	MODEL _		LOCK TEST			NO LOAD					
NUMBER	Volts	Amps	Torque	Volts	Amps	NUMBER	Volts	Ampa	Torque	Volts	Amps	RPM	
AUTO MAU-4013 MAU-4016 MAU-4016 MAU-40122 MAW-4013 MAW-4013 MAW-4013 MAW-4013 MAW-4013 MAW-4013 MAW-4013 MAW-4013	6.0 6.0 6.0 3.0 3.0 3.0 3.0 3.0 3.0	840 840 840 840 806 806 805 805 805 805 805	17.3 17.3 17.3 17.3 11.5 11.5 11.5 11.5 11.5 11.5		65 65 65 65 65 65 65 65 65 65 65	4500 4800 4800 4800 4900 4900 4900 4900 49	MAW-4028. MAW-4029. MAX-4009. MAX-4009. MAX-4019. MAX-4021. MAX-4021A. MAX-4031A. MAX-4031A. MAX-4031A. MAX-4031A. MAX-4031A.	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	505 506 640 652 610 840 840 640 640 640 640 640	11.5 11.5 16.5 21.0 16.5 16.5 16.5 16.5 16.5 16.5	8.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	85 85 65 77 70 65 65 65 65 65 65 65	4900 4900 5300 2700 3900 5300 5300 5300 5300 5300 5300 53

UNIT	LO	CK TE	ST	N	IO LOAD		UNIT MODEL	LOCK TEST			NO LOAD		
NUMBER	Volts	Amps	Torque	Volts	Amps	RPM	NUMBER	Volts	Amps	Torque	Volts	Amps	RPM
AU-4013. AU-4014. AU-4016. AU-4022. AW-4001. AW-4005. AW-4013. AW-4013. AW-4013. AW-4013. AW-4013. AW-4013.	-LIT 6.0 6.0 6.0 3.0 3.0 3.0 3.0 3.0 3.0	840 540 540 540 506 505 505 505 505 505 505	17.3 17.3 17.3 17.3 11.5 11.5 11.5 11.5 11.5 11.5 11.5	11.0 11.0 11.0 11.0 5.5 5.5 5.5 5.5 5.5 5.5 5.5	ued 65 65 65 65 65 65 65 65 65 65	4500 4800 4800 4800 4900 4900 4900 4900 49	MAW-4028. MAW-4029. MAX-4007. MAX-4009. MAX-4018. MAX-4018. MAX-4031. MAX-4031 B. MAX-4031 B. MAX-4033. MAX-4033. MAX-4034.	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	505 505 640 652 610 640 640 640 640 640 640 640	11.5 11.5 16.5 33.5 21.0 16.5 16.5 16.5 16.5 16.5 16.5 16.5 33.5	8.8 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	85 65 65 77 70 65 65 65 65 65 65 65 65	4900 4900 5300 2700 3900 5300 5300 5300 5300 5300 5300 53



There is no magic way to double agsoline power. Engines must be properly adjusted to get full power from fuel. A well-timed engine, equipped with genuine P. & D. Replacement Parts, with ignition timing properly set - plus careful driving — is the sensible way to stretch gasoline mileage. P. & D. manufactures only one complete quality line of replacement parts for use on trucks, buses and passenger cars. P. & D. parts are designed for heavy duty service and help in the material conservation program, because:



Mechanics need use only one quality line for trucks, buses, and passenger cars.

Vehicles thus equipped are assured of peak per-

The ability of genuine P. & D. Replacement Parts to "keep 'em rolling longer" is well known to America's leading mechanics and distributors.

A COPY OF OUR COMPLETE PARTS CATALOG IS YOURS FOR THE ASKING.

RING COMPA STARTING

LIGHTING REPLACEMENT PARTS IGNITION

& D. Manufactures ONE complete quality line. Only the finest mater YOU CAN NOT PURCHASE A

MODEL		JUK IE	.01	NO LOAD		
NUMBER	Volts	Amps	Torque	Volts	Amps	RPI
MAX-4038, MAX-4039, MAX-4084, MAX-4084, MAX-4084, MAY-41148, MAY-41148, MAY-41148, MAY-41148, MAY-4114181, MAY-41181, ML-4184, ML-4184, ML-4186, ML-4189, MR-4111, MR-4111, MR-4111, MR-4118, MR-4118, MR-4118, MR-4108, MR-4089, MR-4108, MR	6.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	652 640 640 640 285 285 285 505 555 555 555 555 555 555 555 555 5	33.5 16.5 16.5 16.5 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2	5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	77 65 65 65 65 65 65 65 65 65 65 65 65 65	279 539 539 539 539 539 539 539 539 539 53

LOCK TEST

DELCO-REMY

DELCC	-KE	MI				
371	3.0	500 1	19	8.0	70	3000
412	5.3	670	32	11.2	80	4500
413	3.0	500	10	8.0	70	3000
414	5.3	670	32	11.2	80	4500
477	4.8	725	44	12.0	65	4500
486	3.5	600	45	8.0	75	2000
493	4.5	500	80	8.0	80	2000
494	3.5	600	45	8.0	78	2000
541	3.0	600	35	5.7	70 78	2200
548	5.0	700	44	11.2	65	2400 4500
578	4.8	728	44	12.0	65	4500
578 579	4.8	726	44	12.0	65	4500
586	4.8	725	44	12.0	- 65	4500
587	4.8	725	44	12.0	65	4500 4500
890	8.3	670	12	11.2	80	4800
598	4.8	725	44	12.0	65	4500
840	3.0	500	19	5.0	70	4806 3000
842	5.3	670	32	11.2	80	4500
644	3.5	500	45	8.0	80 75	4500 2000
648	3.0	500	28	22.0	85	6000 6000 3000 6000
500	3.0	500	25	22.0	85	8060
653	3.0	500	25	22.0	85	8000
855	3.0	500	10	5.0	70	3000
658	3.0	600	24	12.0	100	8000
550	3.0	500	28	22.0	85	I SURE
660	3.0	600	24	12.0	100	8000
861	5.3	870	32	11.2	80	4500 9000 1860 9000 3000
862	3.0	500	25	22.0	85	9000
663	29.5	100	19	32.0	13	1880
668	3.0	500	25	22.0	85	8080
700	3.0	500	19	5.0	70	3000
704	3.0	600	35	5.7	70 85	2400
707	3.0	500 500	25	22.0	85	0000
708	3.0	600	25 24	22.0 12.0	100	0000
709	3.0	500	25	22.0	85	9000
711 712E	3.6	450	11	8.0	70	4500
713	5.0	700	51	11.2	76	2406
714	3.0	500	19	5.0	70	3000
714B	3.4	525	12	5.0	65	3000
714G	3.4	525	12	5.0	85	5000
718D	3.1	570	15	5.0	65 65	8000
718F	3.1	570	15	5.0	65	8000
718R	3.1	570	15	5.0	85	8000
7188	7.5	450	15	11.3	85	6000
719	3.0	800	24	12.0	100	8000
720QX	3.1	570	15	5.0	65 65	6000
7201	3.1	570	15	5.0	65	0000
720V	3.1	570	15	5.0	65	8000
720X	3.1	570	15	5.0	65	8000
721E	6.5	490	28	10.0	70	3000
721G	6.5	490	28	10.0	70	3000
721K	3.0	600	22	6.0	70	3500
724X	3.0	600 490	28	5.0	70	3800
724Y	8.5	420	20	10.0	/0	900

CONTINUED ON PAGE 126

Wex-filled, soldered

denser. Permanent,

Patented Super-Power

Coils. Built to most the

replacement needs of all high-compression maters



Although the needs of our armed forces come first, we can still supply Warner Electric Brakes and equipment if you are on the essential list. FLECTRIC BRAKES

APRIL, 1943

RTER CONTINUED FROM PAGE 124 TEST SPECIFICATIONS

UNIT MODEL NUMBER	LOCK TEST			NO LOAD			WODEL	LO	CK TE	ST	NO LOA		D
	Volts	Amps	Torque	Volts	Amps	RPM	NUMBER	Volts	Amps	Torque	Volts	Amps	RP
DELCC 24Z 25D 225P 2727 28 29L 30 33 34K 34K	3.0 3.0 6.7 3.5 3.0 3.0 3.0 3.0 3.4	600 600 530 500 600 600 600 600 525 525	22 16 16 45 19 16 24 24 12 12	5.0 5.0 10.0 8.0 5.0 12.0 12.0 5.0 5.0	70 60 70 75 70 85 100 100 65 65	2500 6000 7000 2000 3000 5500 6000 6000 5000 5000	734Y	3.3 3.0 3.0 3.0 6.5 6.5 3.0 6.5 3.0 6.5	525 525 500 600 600 490 490 600 490 600 490 670	12 12 25 22 22 28 28 22 28 22 28 22 28 22 28	5.0 5.0 22.0 5.0 10.0 10.0 10.0 5.0 10.0 10.0	65 65 85 70 70 70 70 70 70 70	500 500 350 350 350 350 350 350 350 350

0 0 7 5 0 0 0 0 4 4 4 4	600 530 500 500 600 600 600 525 525 525	22 16 16 45 19 16 24 24 12 12	5.0 5.0 10.0 8.0 5.0 12.0 12.0 5.0 5.0	70 60 70 75 70 65 100 100 65 65	3500 6000 7000 2000 3000 5500 6000 6000 5000 5000	735 721L 721M 721N 721P 722L 722N 722T 722W 722Y 724	3.3 3.0 3.0 6.5 6.5 3.0 6.5 3.0 6.5 5.3	500 600 490 490 600 490 600 600 490 670	12 25 22 22 28 26 22 28 22 28 22 22 28 32	5.0 22.0 5.0 5.0 10.0 10.0 5.0 10.0 5.0 10.0	65 85 70 70 70 70 70 70 70 70	5000 6000 3500 3500 3000 3500 3500 3500
.0 .7 .5 .0	530 500 500	16 16 45 19	5.0 10.0 8.0 5.0	60 70 75 70	6000 7000 2000 3000	721L	3.0 3.0 6.5 6.5	600 600 490 490	22 22 28 28	5.0 5.0 10.0 10.0	70 70 70 70	3500 3500 3000 3000
0.	600 600 525	24 24 12	12.0 12.0 5.0	100 100 65	6000 6000 5000	722N 722T 722W	6.5	490 600	28 22 22	10.0	70 70 70	3000 3500 3500
4						722Y			28			

Pierce does DOUBLE DUTY on Army Wreckers!



Not only do these rugged 4-ton Diamond T wrecker trucks have to wade right in after disabled equipment-wherever it may be-but they have to haul it out, too! Both are tasks that place severe, as well as widely and abruptly varying, loads on the truck engine. And in both cases Uncle Sam relies on a Pierce Flyball Governor to protect the

> engine against excessive speed, and to regulate it to provide the right amount of power to meet any change in load!

> Pierce's time-proven flyball design provides simple, mechanical operation that is positive and dependable. Regulation is accurate and instantaneous. And sturdy, rugged construction makes Pierce Governors outlast the engines themselves in most cases. That's the kind of governing it takes for profitable fleet operation and most economical governor service!

> THE PIERCE GOVERNOR COMPANY 1611 Ohio Avenue, Anderson, Indiana

The Universal Type Pierce Flyball Governor is driven from the fan beit, and can be installed on any make ar model of engine where a direct driving outlet is not provided. This model is still available with the necessary preference rating certificate.



CHECK OIL LEVEL every day in manually lubricated governors. SAE 20 Oil is recommended at this time of year. LINE UP driving pulleys a accurately when reassemble ernor after cleaning. ould your governor need repair or conditioning send it to the factory in the necessary preference rating

HOW TO MAKE YOUR

GOVERNORS LAST!

Like others manufacturing for war needs, Plerce production is for war and essential industry. For this reason new governors can be supplied only on a priority basis. But Pierce calls attention to these easy measures which will make your present Pierce Governors last and give the best service.

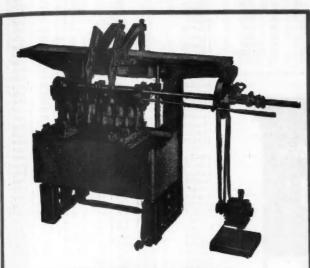
CLEAN GOVERNORS once a m

INSPECT AND CHECK GOVERNORS

LOCK TEST NO LOAD MODEL Volts Volts RPM Amps Torqu Amps 724C. 724D. 724D. 724D. 724C. 724C. 724G. 724G. 734G. 734G. 734G. 736G. 736G. 736G. 737G. 737C. 5.0 0 813 816 833 SM1219 SM1307 SM1410 SM1640 SM1664 SM1750 SM1751 SM1758 SM1788 SM1937 1107001 1107003 1107006 1107009 1107010 1107012 1107018 1107016 1107033 1107041 1107052 1107054 1107055

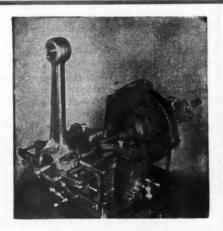
CONTINUED ON PAGE 128

Cut Hours To Minutes In Your Reconditioning Work



TOBIN-ARP Line Boring Machine

For boring main and camshaft bearings, reestablishing perfect alignment and mirror finish. Its universal application covers a greater range than ever before possible.



TOBIN-ARP Rod Boring Attachment

Bores semi-finished babbitted rods, inserts in the rod and the rod forging itself. Handles all rods up to and including R. D. 8 Caterpillar Diesel. Resizes V8 Ford rods quickly. Designed to fit the TOBIN-ARP Model SB Shell Bearing Boring Machine.

In the battle to keep trucks rolling, with a decreasing supply of manpower—every method of increasing the efficiency and production capacity of your men should be utilized.

One of the surest methods is to provide TOBIN-ARP machines because they cut hours to minutes in vital reconditioning jobs. They enable your men to do better work quicker and with a greater ease of handling and simplicity than is possible with other types.

The coupon below will bring you complete information—SEND IT TODAY and learn how to increase your present manpower capacity and efficiency.



TOBIN-ARP Shell Bearing Boring Machine

Bores individual bearing shells to any predetermined size, also resizes eccentric bearings. A mirror finish in less than two minutes. Handles undersized and odd sized bearings.

TOB	IN-ARP	MFG.	C) .	
913	Washingto	n Ave.	S.,	Minneapolis,	Minn.

Sirs: Without obligation, please send us full particulars on your machines checked below—also delivery date information.

☐ Line Boring Machine ☐ Rod Boring Machine
☐ Shell Bearing Boring Machine

FIRM NAME

BY

TOWNSTATE

CONTINUED FROM PAGE 126 STARTER TEST SPECIFICATIONS

MODEL	LO	LOCK TEST			O LOA	LOAD UNIT MODEL	MODEL	LO	CK TE	ST	N	O LOA	D
NUMBER	ER Voits Amps Torque Voits Amps RPM	NUMBER	Volts	Amps	Torque	Volts	Amps	RPM					
DELCO- 1107414 1107418 1107420 1107422 1107431 1107434 1107437 1107801 1107803 1107806	REM 3.1 3.1 3.1 3.1 3.1 3.1 7.5 7.5 7.5	570 570 570 570 570 570 570 570 450 450	Conf	5.0 5.0 5.0 5.0 5.0 5.0 5.0 11.3 11.3	85 85 85 85 85 85 85 85	6000 6000 6000 6000 6000 6000 9000 9000	1107808 1107811 1107813 1107818 1107928 1107918 1107918 1107918 1107918 1107918 1107938 1107938 1107938	7.5 7.5 7.5 7.5 7.5 3.0 3.0 3.0 3.0 3.0	450 450 450 450 450 600 600 600 600 600 600 530	15 15 15 15 16 16 16 16 16	11.3 11.3 11.3 11.3 11.3 5.0 5.0 5.0 5.0 5.0	65 65 65 65 66 60 60 60 65 65 65	6000 6000 6000 6000 6000 6000 6000 5500 5500 7000

WODEL	LO	CK TE	ST	NO LOAD				
NUMBER	Voits	Amps	Torque	Volts	Amps	RPM		
1108103		530	16	10.0	70	7000		
1108104	8.7	530	16	10.0	70	7000		
1108107	6.7	530 530	16	10.0	70	7000		
1108201		600	16	10.0	70	7000 3500		
1106202	3.0	600	22	5.0	70	3500		
1106205	3.0	800	22	5.0	70	3500		
1108206	3.0	600	22	5.0	70	3500		
1108207	3.0	600	22	5.0	70	3500		
1108208	3.0	600	22	5.0	70	3500 3500 3500 3000		
1108210		800	22	5.0	70	3500		
1108401		490 490	28	10.0	70	3000		
1108404	6.5	490	28	10.0	70	3000		
1108405		490	28	10.0	70	3000		
1108406 1108451	8.5	490	28	10.0	70	3000		
1108451	3.0	800	28	5.0	70	2500		
1108452		800	28	5.0	70	2500		
1108453		800	28	5.0	70	2500		
1108454		600 600	28	5.0	70	2500		
1108455 1108528	6.7	530	28	10.0	70	2500		
1108531	6.7	530	23	10.0	70	2800		
1108533	8.7	530	33	10.0	70	2800		
1108534	6.7	530	33	10.0	70	2800		
1108580	3.4	525	12	5.0	85	5000 7000 5500		
1108562	6.7	530	18	10.0	70	7000		
1108651		600 450	16	5.0	65	5500		
1108676	7.5	500	15	11.3	65	6000 3000		
1108677	8.7	530	33	10.0	70	2800		
1108701		570	20	11.6	100	5000		
1108702		570	20	11.6	100	5000		
1108703	2.3	570	20	11.6	100	5000		
1108704		570		11.6	100	5000		
1108705		570	20	11.6	100	5000		
1108708		570		11.6	100	5000		
1108707	2.3	570 570	20	11.6	100	5000		
1108715	2.3	570	20	11.6	100	5000		
1108724		570	20	11.6	100	5000		
1108900	3.0	500		5.0		3000		
1108907	5.3	670	32	11.2	80	4500		
1109100	4.8	725	44	12.0	65	4500		
1109103	4.8	725	44	12.0	65	4500		
1109104	4.8	725	44	12.0	65	4500		

Americas Most Priceless Weapon ... The SHIELD of FAITH!

ULTON Automotive Equipment . . . made, delivered and installed before War Production claimed our full manufacturing facilities . . . is today rendering valuable service on thousands of motor vehicles on many fronts. These products contribute to safety and comfort . . . providing protection and convenience for those who drive cars and trucks.

But today our resources and man-power are dedicated to a much greater task...the PROTECTION and PRESERVATION of Civilization, Democracy, and the American Way of Life. No manufacturer, no man, no machine can be permitted to stand idle or engage in pointless endeavor during this world crisis. The maintenance and servicing of automotive equipment of all types, which now constitutes a major activity of most automobile and truck dealers and service garages, IS essential and important work deserving the highest commendation and support.

Your job is to help "Keep 'em Rolling". Our job is to help "keep 'em fighting, flying, sailing" . . . until Victory is won. In this work our most priceless weapon is THE SHIELD OF FAITH . . . faith in ourselves, our government, our country and most of all . . . in OUR GOD! Working together, with a common purpose, in a united faith and front, we cannot help but win . . . God willing!

FULTON AUTOMOTIVE

THE FULTON COMPANY

MILWAUKEE, WISCONSIN

Draw on your jobber's stocks for Fulton Equipment including: Defresting and Ventilating Fans, Electric Sleet-Frost Shields, Trailer Couplings, Tow-Bars, Grille Guards, Steernobs, Visors, Accelerator Pedals and Pedal Pads. Priorities not required for stocks on hand.

Maintenance Manual to Be Issued by the ODT

Owners of all types of passenger cars, trucks and buses who have had difficulty setting up regular upkeep and service plans for their vehicles will soon be able to obtain a simple and complete manual covering common maintenance practice, the ODT announced today.

Based on a preventive maintenance report prepared by the Society of Automotive Engineers at the request of the Office of Defense Transportation, the manual sets forth the ABC's of vehicle maintenance and outlines the kind of inspections, checks and adjustments that should be made to assure efficient and economic operation of all types of motor vehicles.

The manual makes available to the average truck, bus or passenger car operator the basic rules of maintenance which have been employed and perfected by fleet operators and maintenance experts over a period of years. It is being distributed by the ODT as an aid to vehicle owners who want to keep their equipment in top-flight condition during the war transportation crisis but who have been unable to set up a specific maintenance plan because of a lack of easily applied information.

The manual, which also should prove helpful in coping with mechanical problems arising from the tire inspection program, will be ready early in April and will be given wide distribution through the ODT at Washington and in the field and through the field offices of the Office of War Information.

**

ONLY YOU CAN SERVE THESE AMERICANS...





It's a big job you're doing—and we're out to back you in every possible way! You're keeping your trucks rolling day and night. They're hauling the vital materials of war, from coast to coast—in addition to serving 54,453 American communities which have no other means of transportation.

You Can Count on Us!

And we're in there pitching, too. It's our job to see that you get the dependable heavy-duty parts you need to *keep* your fleet in tip-top wartime operation—just as the parts we manufacture for Uncle Sam's planes are helping to fight this war in the skies!

Conservation for Victory!

When you need new parts replacements, specify Toledo for longer life on the job. But where you can, make present parts do. These days, every bit of metal—every fighting part—must do its part for Victory. So learn to conserve parts where possible. Make the available supply go around—and we'll see this job through, together!

The TOLEDO

STEEL PRODUCTS COMPANY

TOLEDO, OHIO

SINCE 1906

Makers of Fine Automotive and Aircraft Parts

TROUBLE-SHOOTING GUIDE

(CONTINUED FROM PAGE 43)

drum causing too much toe or heel contact.

C3. Backing plates loose and shift under braking effort.

C4. Drums out-of-round.

C5. Drums weak and change shape when

C6. Worn or scored drums.

C7. Too much axle roll caused by weak springs.

C8. Weak shock absorbers.

C9. Incorrect lining.

C10. Grease on lining.

C11. Lining loose on brake shoes.

C12. Unequal lining-to-drum clearance.

C13. Weak kick shackles allow too much axle shift.

BRAKES WON'T HOLD

-HYDRAULIC BRAKES

A1. Master or wheel cylinders sticking. A2. Fluid too thick or sluggish.

MECHANICAL BRAKES

B1. Mechanical linkage set wrong.

B2. Grooves worn on inside of conduit by cable sets up friction.

B3. Cross shaft incorrectly set.

B4. Pedal pull-rod set in wrong hole.

C-ALL TYPES

- C1. Lining not correctly burnished to drum
- C2. Shoe not properly centered on drum.

C3. Grease on lining.

C4. Highly glazed lining. C5. Drums tapered, poor contact between drum and lining.

C6. Anchors incorrectly set.

C7. Pull-back springs installed wrong.

BRAKES DRAG A-HYDRAULIC BRAKES

A1. Sluggish fluid.

A2. Collapsed hose.

A3. Sticking cylinders.

A4. By-pass port blocked.

-MECHANICAL BRAKES

BI. Mechanical linkage on rear wheel emer-

gency brake set up too tight. B2. Linkage set up too tight and shoes are pulled away from anchors.

-ALL TYPES

CI. Shoe ledges worn or rusty.

C2. Frozen anchors, pins and bushings.

C3. Axle shift due to broken spring center bolt.

C4. Shoe guides too tight.

C5. Pull-back springs too weak.

C6. Loose wheel bearings.

WET WEATHER TROUBLE

Drum dust forms paste when wet, causing loss of friction.

Drum dust absorbs moisture and clings to lining surface causing grab.

Water deposits in grooves of scored drums.

AIR BRAKE TROUBLE A-SLOW PRESSURE BUILD-UP IN RESERVOIRS

A1. Leaking application of brake valve.

A2. Leaking compressor discharge valve.

A3. No clearance on unloader valve.

A4. Leaking lines or connections.

A5. Clogged air cleaner.

A6. Compressor piston and rings worn, carbon in discharge line.

B-QUICK RESERVOIR PRES-**SURE LOSS**

BI. Leaking valves.

B2. Leaking governor.

B3. Worn and leaking compressor discharge

B4. Tubing or connections leaking.

C-COMPRESSOR NOT UN-LOADING

CI. Broken unloader diaphragm.

C2. Restriction in air line from governor to unloader.

C3. Governor not operating.

C4. Too much clearance on unloader valves.

D-SLOW BRAKE APPLICATION

DI. Low brake line pressure (brake valve to chambers).

D2. Brake chamber push-rod travel excessive.

D3. Restriction in lines.

D4. Leaking brake valve diaphragm.

D5. Leaking brake chamber diaphragm.

D6. Brake lining or drum condition.
(TURN TO PAGE 132, PLEASE)



lo help supply the tremendously increased demand for sealing materials of all types for our military forces and war industries, Fel-Pro has added new buildings, increased plant capacity and developed new products. Among these is Thiokol Strip Material, whose spongy, rubberlike characteristics make it suitable for army vehicle tailgate moulding and many other purposes.

But we feel that one of our most important responsibilities at this time is to continue to supply the sealing material needs of the automotive service industry, which has the vital war job of helping keep essential transportation rolling. We can deliver, without lengthy delays, most of the Fel-Pro products listed.

with FEL-PRO GASKETS - for every automotive application. PACKING—for water pumps, bearing seals, etc. GREASE RETAINERS—in sizes and types to fit all cars. TAPE—Woven Asbestos List-ing Tape — Twisted Asbestos Wicking. MANY OTHER Automotive * Most of these products are available packaged in boxes or sets.

Keep'em Rolling *



Felt Products Mfg. Co. 1520 CARROLL AVE., CHICAGO, ILL.

BAITERY BLACKOUT

wastes man-hours



GLOBE Spinning Power

The Battery Built for Wartime Replacement Service



IT costs less to prevent BATTERY BLACKOUT
... and, in addition, saves you valuable
man-hours. The first step is routine — careful
check-up of batteries BEFORE every trip. When
your check-up says "replace," install GLOBE
SPINNING POWER — the battery powered for
wartime replacement service. Built for trucks,
buses, commercial vehicles and Diesel-starting.

Let a Globe engineer study your requirements and give you a recommendation. Address nearest factory.

GLOBE-UNION INC., Milwaukee

ATLANTA • BOSTON • CINCINNATI • DALLAS • LOS ANGELES • MEMPHIS • PHILADELPHIA • SEATTLE

CJ-443

GLOBE Spinning Power BATTERIES

TROUBLE-SHOOTING GUIDE

(CONTINUED FROM PAGE 130)

E—SLOW BRAKE RELEASE

- El. Brake valve lever not returning fully to stop. E2. Binding cam or camshafts.
- E3. Brake chamber push-rod travel exces-
- E4. Restriction in tubing or hose. E5. Improper seating of valves. E6. Weak or broken return springs.

F-INEFFICIENT BRAKES

- F1. Too much push rod travel on brake chambers.
- F2. Lining and drum condition.
 F3. Brake chamber diaphragm leaking.
 F4. Low brake line pressure.

VACUUM BRAKE TROUBLE

SLOW BRAKE RELEASE

CAUSE

Diaphragm or cylinder pull rods bent or out of line cause binding.

Dirt clagged relay valve air cleaner. Dirt in relay valve. Weak or collapsed vacuum hose. Restriction in control line. Leak in check valve.

SEVERE TRAILER BRAKES CAUSE

Defective or wrong type relay valve. Power cylinders too large. Hand valve improperly installed. Non-graduated type of foot valve used. No synchronizer valve.

SLOW TRAILER BRAKES

CAUSE

Power cylinder too small. Moisture in line or relay valves. Synchronizer valve improperly adjusted. Synchronizer valve defective.

BRAKES INADEQUATE CAUSE

Relay valve air cleaner clogged. Too much travel of cylinder pull rod. Synchronizer valve improperly adjusted. Low vacuum

Leaking brake cylinder or diaphragm cham-

Insufficient leverage at power unit pull rod.
Diaphragm or cylinder pull rods bent or out
of line cause binding.

AUTOMATIC APPLICATION

CAUSE

Collapsed brake hose. Leaking check valve. Air leak in system.

ing guide we have picked the more common causes for tire wear, and the factors affecting them. However in trouble-shooting your tire wear it is recommended that all these causes be checked regardless of type of wear.

DUE TO OVER-INFLATION

Abnormal center tread wear. Crown breaks. Bead failures. X breaks in fabrics. Tread cracking. Diagonal breaks.

CAUSES

Neglect of manufacturers' recommendations. No regular check of tires. High speed driving. Long steady driving.

DUE TO UNDER-INFLATION

Side wall or flex breaks. Abnormal tread wear (tread wiped away). Rim bruises or cord fractures.
(TURN TO PAGE 134, PLEASE)



given in the beadline above.

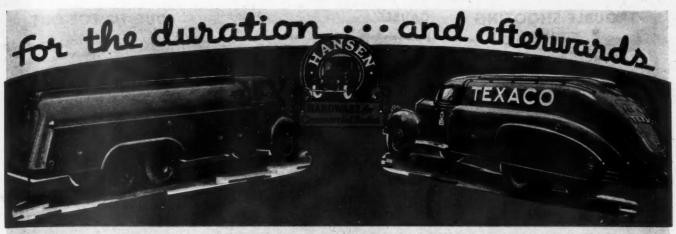
It happens! - to those who take the trouble to make it

happen. Saves money of course; but far more impor-

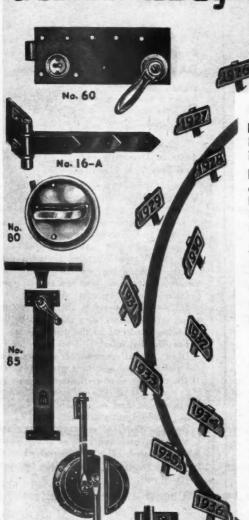
tant, it saves metal - saves it in important quantities.

Send for our booklet, "Ten Ways of Getting More Work Out of Motor Trucks." It's free. THE SERVICE

RECORDER CO., 1375 Euclid Ave., Cleveland, Ohio.



HANSEN - for twenty-three years the leading BODY HARDWARE



BEFORE . . . during . . . and afterwards — HANSEN!

Before motor equipment was called on in an "all out" effort, Hansen Hardware had a twenty-two year record of dependable performance in all types of commercial body service.

For the duration this was a good background to carry into the emergency period—for tanks, trucks and trailers must have locks and hinges—the kind that will stand the "gaff". What could be more logical than to continue using HANSEN, with such a service record back of it?

Afterwards—this same Hansen serviceability will continue to be of great value by helping to keep in service the millions of trucks that will be converted to peace-time use, as well as providing a standard of quality which every newly built truck

of quality which every newly-built truck should embody.

Before ... during ... and afterwards— HANSEN! SEND FOR CATALOG—
if you don't already have
one — showing the complete
Hansen Line of Commercial
Body Hardware and automatic one-hand Tackers.

HANSEN PRODUCTS ILLUSTRATED

No. 16-A SQUARE - CORNER HINGE. Leaf-type, 3-ply, all-steel. Size, 16" strap. Width, 2\(\frac{1}{4}\)". Butt, 5\(\frac{1}{4}\)" high, 4\(\frac{1}{2}\)" wide. Weight, 6\(\frac{1}{4}\) lbs.

No. 60 EXTENSION LOCK (left-hand). Onepiece construction. Size, 5" x 10". Handle, 5" long. 11/4" hardened striker bolt. Matched rosettes. Wt. 2% lbs.

No. 80 FLUSH MANDLE. Fits flush with door. Weight, I ib. DIMENSIONS: Recess, 4½" dia. ½" deep. Flange, 7/32" dia. Shank, 3½" long, 5/16" dia. Right or lefthand operation.

No. 85 WINDOW REGULATOR. Straightup lift. Crank handle. Enclosed mechanism. Lead-coated to prevent rusting. Suitable tor cither right- or left-hand application. Complete with glass channel, crank and rosette. Weight, 4 lbs.

Weight, 9 103.

No. 99 ROTARY DOOR LOCK. Locks two doors solidly as one. Weight, 4 lbs., 9 ozs. DIMENSIONS: (overall)—Length, 61". Dia of center mechanism, 61/6". Steel rods, %" dia., 30" long. Two rod guides. Complete, including outside handle, ready to install.

No. 105 DOOR LOCK. Strong, compact, easy to apply. Suitable for 5½' door. Two standard 30", ¾" dia. rattle-proof steel rods with guides. Center mechanism, 2½" wide, 6¼" long. Weight, 3 lbs., 2 ozs.

A. L. HANSEN MFG. CO. 5047 Rayenswood Ave. CHICAGO, ILL.



No. 99

No. 105

TROUBLE-SHOOTING GUIDE

(CONTINUED FROM PAGE 132)

CAUSES

Slow leak puncture.
No valve cap.
Negligence of manufacturers' recommendations.

OR OVER-FLEXING

Side wall breaks in cord. Spotty wear.

CAUSES

Loading above maximum capacity of tire. Extensive operation on crowned roads. Sprung axles. Mis-matched dual tires.

ON TURNS

Center tread wear.

CAUSES

Bent steering arm.

DUE TO TOE-OUT

Cross wear (feather edge on outside

CAUSES

Bent tie rod.
Poor alignment.
Bent steering arm.
Worn spindle pins.
Change in caster or camber.
Worn or loose wheel bearings.

DUE TO TOE-IN

Cross wear (feather edge on side of ribs towards vehicle).

CAUSES

Weak springs.
Bent radius rod.
Twisted axle.
Worn spindle pins.
Change in caster or camber.
Worn or loose wheel bearings.
Bent steering arm.

DUE TO TRAMP

Cupping of tread.
CAUSES

Wheels out of balance.
Incorrect toe-in.
Too little caster.

Tests to Determine If Anti-Freeze is Harmful

Simple tests have been devised by the U. S. Bureau of Standards at the request of the ODT to help truck and automobile owners determine whether the anti-freeze solutions in their vehicles contain harmful inorganic salts and petroleuum distillates.

Safe anti-freeze mixtures are permanent solutions containing ethylene glycol and the more common semi-permanent typed containing methyl or ethyl alcohol.

Unless truck operators are sure they are using safe mixtures, they should make the following two tests in the order given:

For distilled oils:

Draw a small amount of mixture from the radiator and add to a glass of water. If the radiator mixture floats noticeably on the water, the anti-freeze contains injurious kerosene, fuel oil or naptha.

For harmful salt solutions:

Drain a cupful of radiator mixture into a clean tin can, and boil until all liquid has evaporated. If a substantial white or crystalline coating remains, the solution contains salt.



Lurelle Guild, noted New York industrial designer, gives this as his conception of "Transport of the Future." Mr. Guild's vehicle is one of a number to be featured in a series of advertisements of the Timken-Detroit Axle Co.



Don't Let This "Gremlin" Make You Commit "Mechanical Treason!"

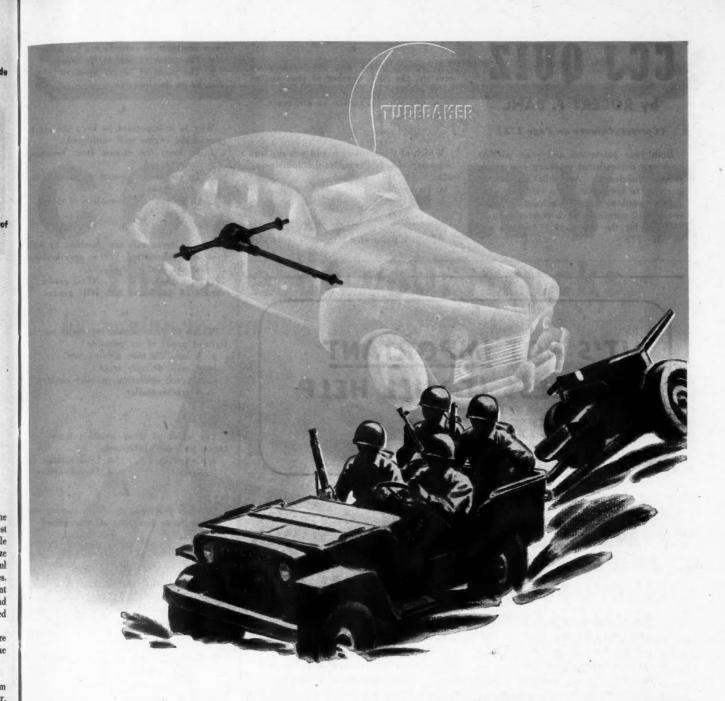
Needless waste of horsepower is "mechanical treason"! And the evil little "Gremlin" that can cause you to commit it in a car, truck or tractor needed for war work is an inefficient spark plug.

Now, if ever, use good plugs!—Edison precision-engineered plugs that you can depend on to fire hot and efficiently and to convert all fuel into power.

War makes conservation vital!—Always use Edisons when available!



EDISON-SPLITDORF CORP., WEST ORANGE, N. J.



Spicer Axles and Propeller Shafts — from peacetime motor-cars right into jeeptime maneuvers!

Strong..rugged..yet light in weight..these are features of the Spicer-built Salisbury Axle, used in thousands of peacetime motor-cars. When war came, this same axle was immediately built into the Jeep, now famous for dependable military service. This product excellence permitted Spicer to turn instantly to war production, and will assure quick conversion to civilian needs at Victory. Spicer Manufacturing Corporation, Toledo, Ohio.



ROWN-LIPE CLUTCHES AND TRANSMISSIONS - SALISBURY FRONT AND REAR AXLES

SPICER UNIVERSAL JOINTS . PARISH FRAMES, STAMPINGS

CCJ OUIZ

by ROBERT F. BAHL

(Correct Answers on Page 172)

Both your patriotism and your pocketbook now demand that you keep your truck properly lubricated. And this CCJ Quiz is intended to keep your brain oiled up with a few questions about lubricants. Score yourself 10 points for each correct answer, and aim for the 100 mark. Answers are on page 172.

As spring comes and the temperature goes up, the SAE number of your engine oil should go...

a. up. c. makes no difference. b. down.

2.

Which of these colors would you say was characteristic of "Pennsylvania" lubricating

a. Dark green.

c. Golden yellow.

b. Claret red.

d. Black.

3.

At which point of a bearing is it usually

most desirable to introduce a lubricant?

- a. The point of highest pressure.
- b. The point of lowest pressure.
- c. From the bottom.

Why is it important to keep the crank. case of the engine well ventilated?

- a. To keep the engine from becoming overheated.
- b. To prevent explosion of gases in the crankcase.
- c. To prevent the formation of sludge.

5.

Just as motor oils are classified by SAE numbers, lubricating grease specifications are standardized by the....

- a. NPI grades.
- c. NLGI grades.

b. AGA grades.

d. IOU grades.

6.

Which of these should especially use the lightest grade of oil possible?

- a. A long distance moving van.
- b. A milk delivery truck.
- c. A truck operating in hilly country.
- d. A tractor-trailer.

- For which of these would you use "extreme pressure" lubricants?
 - a. Cylinders.
- c. Leaf springs.
- b. Gears.
- d. Diesel engines.

8.

In what year was the SAE number system set up to designate oil viscosities?

- a. 1912.
- c. 1924.

- b. 1920.
- d. 1932.

9.

What does the "W" signify in a lubricating oil grade?

- a. That it's viscosity specifications have been determined at 0° Fahrenheit.
- b. That it is derived from California crude oil.
- c. That it is white or clear in color.
- d. That it is especially designed for trucks.

10.

For this last question, fill in the missing words. To make it easier, we've given you the first letter of each word.

A good engine oil must do four things at the same time. It must 1....; it must c....; it must s....; and it must c.....



Special 10 wheel, Rea tractor-truck above is part of a recent train-load delivery to the U. S. Army. Don C. Streeter, Rec general sales manager, states that these diesel-powered units are used to transport tanks to required points on the battle fronts. The trac-tor-track pulls a large flot-had trailer on which

"IT'S NOT IMPORTANT UNLESS IT WILL HELP WIN THE WAR."

MISTER, you said it!

This is no time for "hair-splitting" or "gingerbread". Chrome trim and plaid upholstery don't fit in with tank-killer turret guns and caterpillar treads.

And bow important anything is must be measured in terms of "service rendered" where it counts most.

Our product, the VISCO-METER*, built up quite a service record in government use through pre-war years. Soon after Pearl Harbor our entire production capacity was enlisted to serve with the gasoline and Deisel engines consigned to Uncle Sam's war uses.

A simple 12 ounce piece of mechanical precision the VISCO-METER* is doing an important job-and doing it well-guarding these needed and costly engines against lubrication failures. No need to go into the importance of lubrication—that's recognized. The important thing is: only VISCO-METER* can tell visually, (via a continually indicating gauge) the viscosity or lubricating value of the crankcase oil while the engine is in operation. Only VISCO-METER* can warn in advance of failure-preventing damage and loss of service. So the VISCO-METER* is important and is helping to win the war.

In peacetime the VISCO-METER* will continue to play an important role. If you are looking forward, a VISCO-METER* engineer can be most helpful.

5**CO**-R

*Fully covered by U. S. and Foreign Patents

GROTE ST., BUFFALO, N. Y.

CONSERVE the life of your trucks

by having hydraulic brake systems checked regularly



Whenever brakes need to be repaired - - you'll get parts of the highest quality by specifying Wagner Lockheed



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War-time conditions make it more important than ever that attention be given to hydraulic brake systems. Trucks must be kept rolling safely—and to do this it means that brake systems must be properly maintained to stop trucks quickly and safely. This is essential in order to conserve the life of the trucks.

One of the things that you can do is to make sure that the master cylinder on each truck is checked regularly so that the brake fluid is maintained at the proper level.

When additional fluid is needed, use WAGNER LOCKHEED No. 21 HYDRAULIC BRAKE FLUID

No. 21 is recommended for all hydraulic brakes. It retains its highly efficient qualities under all driving conditions. It completely and properly mixes with all other approved fluids, furnishes necessary lubrication for working parts of the hydraulic brake system, and in general, preserves the essential characteristics of the entire system.

Please be assured that Wagner, through Wagner jobbers, is doing everything possible to keep you and other dealers supplied with No. 21 Fluid. Whatever the size or shape of container, Wagner No. 21 will be readily recognized by the familiar red, white and blue design with No. 21 in the circle.

There is a Wagner jobber near you who can supply Wagner Lockheed Brake Fluid. He can also supply Wagner Lockheed Hydraulic Brake Parts for repairing brakes on all makes of cars and trucks. If you don't know his name, please write us today.

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ELECTRICAL AND AUTOMOTIVE PRODUCTS

Use postage-paid card inserted in this issue for free information on advertised products



REFRIGERATION DATA

THERMAL CONDUCTIVITY OF INSULATING MATERIALS

Thermal conductivity of various insulating materials per hour per square foot per degree Fahrenheit per inch of thickness

Balsam Wool	.26	Corkboard (7 lb. per cu. ft.)	.27
Colotex.	.31	Corkboard (10.6 lb. per cu. ft.)	.30
Corkboard (5.4 lb. per ou. ft.)	.25	Corning Wool (1½ lb. per eu. ft.)	.27

Pale	wool	 													*		
Rock	Wool Cork	 									21					*	
Temi	ock	 			 	*	 				ю.						



RUBBER CONSERVATION MAKES GOOD GOVERNORS

A "MUST"

It is a patriotic duty as well as a demand by the government that rubber be conserved.

A good Governor is a powerful factor in conserving rubber.

Handy Governors have been making records in tire conservation for many years—up to 23 per cent saving in tire maintenance in hundreds of fleets.

In addition, they save up to 15 per cent on fuel—26 per cent on Inbricant costs—32 per cent on engine repair—26 per cent on general maintenance—30 per cent on brake maintenance—16 per cent on insurance—37 per cent on accident cost.



KING-SEELEY CORPORATION . Ann Arbor, Michigan

HANDY

GOVERNOR

World's Largest Manufacturers of Automotive Governors

Temperatures Recommended for Transportation and Retail Storage

UNFROZEN

VEGETABLES		Oranges	35-48
		Peaches	35-40
Asparagus	33-34	Pears	32-34
Beans (green)	33-34	Pluma	32-38
Beets	32-40	Raspberries	35-40
Brocoli	32-34	Strawberries	35-49
Cabbage	32-38		
Carrots	33-36		
Cauliflower	32-34	MEATS AND FI	SH
Celery	32-34		
Corn (green)	36-38	Bacon	30-38
Cucumbers	36-40	Beef (fresh)	32-40
Lettuce	32-40	Eggs	33-38
Onlons	32-36	Fish (fresh)	32-40
Peas (green)	32-36	Lamb	32-38
Potatoes	35-40	Mutton	32-38
Potatoes (sweet)	50-55	Oysters (shell)	30-38
Radishes	32-38	Pork (fresh)	30-34
Squash	33-36	Poultry	20-30
Tomatoes	35-40	Veal	35-40
		DAIRY PRODUC	ers.

		DAIRY PRODUCTS					
FRUITS		Butter	20-35 35-40 32-38				
Apples	32-36	Milk (butter)	32-40				
Apricots	35-40						
Bananas	55						
Blackberries	36-40	FROZEN FOOD	3				
Cantaloupes	35-40						
Cherries	38-40	Eggs	10-15				
Cranberries	33-38	Fish	10-20				
Gooseberries	36-40	Fruits in syrup	10-20				
Grapefruit	32-38	Ice Cream	5-10				
Grapes	32-36	Moats	10-20				
Lemons	40-45	Vegetables	5-10				

Courtesy American Society Refrigerating Engineers

Desirable Wall Conductivities for Perishables

(Wall conductivities generally desirable for the transportation of various types of perishables.)

	B.T.U. per hor per degree F. per square for
Bakery, candy and broad trucks	.60
Trucks for bulk and smoked meats	.15 to .30
Trucks for sausage and fresh cut meats	.10 to .20
les cream, quick-frozen food trucks	.06 to .05
Trucks for solid carbon-dioxide transport	.03 to .05

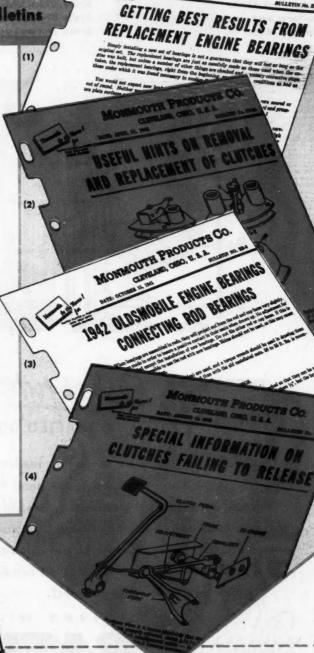
To Completely Master

CLUTCH AND BEARING TROUBLES

Get These Free Monmouth Service Bulletins

ACH bulletin is complete. It tells how to deal successfully with a single clutch or bearing problem. More than 50 bulletins issued to date. Written in plain, understandable non-technical language by expert automotive engineers who specialize in clutch and bearing design and construction. Illustrated with simplified drawings. These bulletins will make you a master repairman of clutches and bearings just as they have thousands of other crack auto mechanics who use them regularly.

To keep America's cars and trucks in first class shape is now vital to our war effort. The "know how" to achieve this task is supplied by these bulletins. Consequently we are glad to furnish sample bulletins free and without cost to any man in the repair field. Write for them today. Qualify as an expert in clutch and bearing troubles-increase your earnings and your contribution to the war effort through specialized skill. Please use the coupon below. Address the Monmouth Products Company, Cleveland, Ohio.



MONMOUTH PRODUCTS CO.

CLEVELAND, ONIO, U.S. A.



155

Monmouth Engine Bearings, Clutch Plates and Parts and King Bolt Sets are maintained in NAPA maintained in NAPA Warehouses from coast to coast, assist-ing hundreds of jobbers in every sec-tion of the country to give prompt serv-ice even on rarely-celled-for numbers.

FOR ENGINE BEARINGS CLUTCH PLATES AND PARTS KING BOLT SETS



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☐ Superintendent

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State

☐ Foreman ☐ Partner

APRIL, 1943

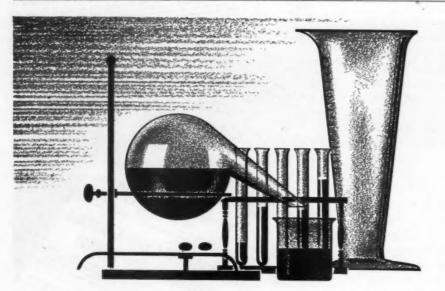
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THERE'S No Substitute FOR GRAFILD QUALITY

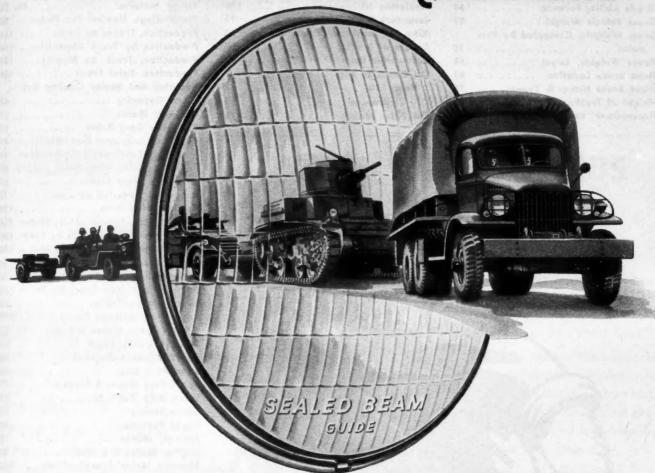
Thanks to years of research leadership in friction materials there is no need today to relax our quality standards. Grafild linings will continue to lick the tough jobs and please the fussy users. There is no substitute for Grafild's quality and none at all for Grafild's "know-how". See for yourself.

RELINE WITH



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GUIDE LIGHTING EQUIPMENT



Serves on Military Trucks and Vehicles

On trucks, tanks, armored cars, full tracks, half tracks and gun carriages, Guide lighting equipment is "rolling along" with the fighting forces.

The experience Guide has gained through many years of close cooperation with bus and truck manufacturers is an important factor in meeting military requirements. By the same token, technical developments growing out of Guide's wartime assignments will someday serve the peacetime transportation industry.

Guide products and service parts are sold through independent United Motors distributors served by 20 conveniently located United Motors Service branch warehouses.



BUILDER OF AUTOMOTIVE LIGHTING EQUIPMENT

27

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Edwards is devoting its entire manufacturing facilities to the production of military trailers and many other articles required for Victory. • And, as individual employees, we have pledged ourselves to buy War Bonds and assist the national salvage and conservation programs to the best of our ability.



EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA



Rislone Makes 4 Vital Savings

Keeps Engines Operating Efficiently!

1 Conserves Oil Saves it for our fighting forces.

RISLONE added to the regular oil in the crankcase absorbs gum and sludge formations—eliminates and prevents sticky valves—restores lost compression and power.

2 Saves Fuel

57

38

RISLONE "cleans out" engines—frees valve and ring action—equalizes compression in all cylinders, assuring "peak" performance and a reduction in fuel consumption.

3 Prolongs Engine Life

RISLONE rids engines of power-robbing gums, increasing their efficiency. Its high capillary attraction assures proper and adequate lubrication at all times, thus reducing wear on vital moving parts. RISLONE

reduces the "time-out" periods for repairs—prolongs engine life and cuts operating and maintenance costs.

4 Saves Manpower...Service Costs

The consistent use of RISLONE right in the crankcase with the regular oil assures a quieter, smoother running engine. Service work and replacement part costs are reduced, leaving your help free to do other productive essential work. Recommended and used by engine builders and car factory engineers.

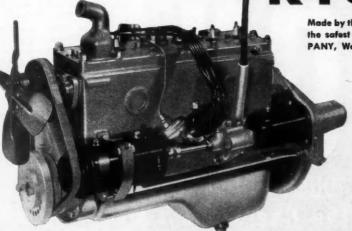


RISLONE has been used for many years by motorists, fleet and bus transportation operators, our Armed Forces, industrial and construction machinery operators.

SHALER RISLONE

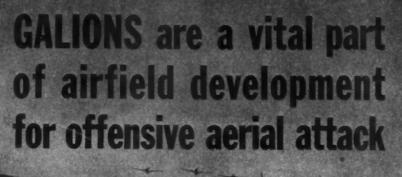
Made by the makers of World-famous "Hot Patches," the safest tube repairs known—THE SHALER COMPANY, Waupun, Wisconsin, and Toronto, Canada.

Write for free sixtyfour-page illustrated book, "Engine Performance" —tells all about "Tune-Up" procedure.



RISLONE is available in five, fifteen, thirty and fifty gallon fauceted drums for shop use—Lithographed packages for the consumers.

At the present time Priorities are not required for Shaler Vuicanizer Clamps but the requirements of our Armed Forces and rated war orders take practically our entire output. Rated orders also require most of our production of the large G8 and G9 Streamliner "Hot Patches" as well as replacement Valves. Consequently the supply available for civilian use is limited.





HYDRAULIC HOISTS and DUMP BODIES are Built to OUTLAST the Chassis *

THE GALION ALLSTEEL BODY CO., GALION, OHIO, U. S. A.

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Record Livestock Tonnage by Truck

Tonnage of livestock hauled from farms to market by truck in 1942 again broke all previous records. Trucks delivered 62.8 per cent or nearly two-thirds of the cattle, hog and sheep tonnage.

hog and sheep tonnage.

A total of 9,250,850 tons of meat animals were marketed by truck, a gain of 866,190 tons over the previous year. It is estimated that 3,144,161 trucks unloaded \$2,195,000,000 worth of cattle, hogs and sheep at the markets.

It would have taken 830,000 rail cars to transport the stock that rode to market via the highways. A comparison with previous years follows:

	Total Tons	Per Cent of Total	No. of Head	of Total N
1942.	9,250,850	62.8 4	8,734,505	55.8
1941.	8,384,660	66.5 4	4,035,840	58.9
1940.	7,772,346	63.7 4	4,074,025	56.7
1020	C 469 077	EQ 4 9	9 E07 677	59.4

Ford Bros. Wins "7th Column" Drive

Ford Bros., Omaha, Neb., van and storage company, won a safety award during the Omaha Safety Council's "Smash the 7th Column" drive.

Ford Bros. employs 16 people, who worked 19,965 hours in a six months period and reported no accidents. The firm won an award in Division V. of an Industrial Contest, and another in Truck Division A, having 4 trucks averaging 20,100 miles with no accidents over the same time period.

The presentation of awards was made at a dinner following an all-day industrial conference attended by approximately 700 plant managers, foremen, and safety engineers who discussed the latest measures for conserving manpower through accident prevention. The group planned to continue the "Smash the 7th Column" drive for a year.



TRANSPORTATION FORMULAS

VEHICLE SPEED

RPM X R 168 × FGR

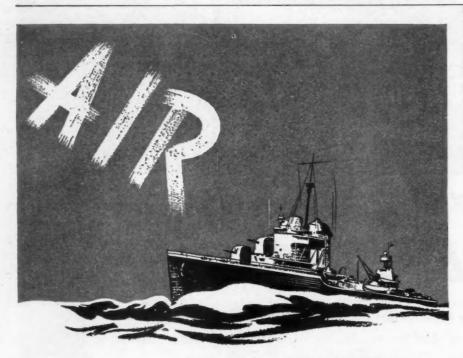
Miles Fer revolutions per Minute Engine Revolutions per Minute Relling Radius Final Gear Ratio A constant comprising the convers rolling radius in inches to wheel of ference in feet; wheel revolution minute to wheel revolutions per feet ser hour to miles per hour

ENGINE SPEED

RPM = MPH × 188 × FGR

HORSEPOWER

Maximum Net Horsepower (maximum horsepower less power consumed by accessories) is the only horsepower that el used in transportation engineering formus can be determined only by using a dynan or may be procured from the manufacture



NOT WIND!

When air gets worked up to the point of being called a strong wind, its usefulness is gone, and it becomes a menace. Air-cool, clean air-at controlled pressures -is a valuable tool in automotive service and industry. No hot air, but cold hard facts on increased efficiency, greater dependability, lower cost, has built the name and reputation of Kellogg-American. That's why this is preferred equipment in shops across the country, why so many are going today into war work and military material. American Brake Shoe and Foundry Co., Kellogg Division, Rochester, New York.



GRADE ABILITY

GVW mines .012 TE

GA — Grade Ability TE — Tractive Effort GVW — Grose Vehicle Weight .012 — 12 lb. per 1000 lb., rolling resistance en hard-eurfaced roads

TRACTIVE EFFORT

Ib. in. Torque \times FGR \times .90 B

R — Rolling Radius in Inches
FGR — Final Gear Ratio
ib. In. Torque — 12 times Torque in ib. ft.
.90 — Efficiency for all rear axies except we
then .85

DRAWBAR PULL

 $DP = \frac{.90 \times lb. in. Torque \times FQR}{}$ -.012 GVW

DP — Drawbar Pull
R — Rolling Radius in Inches
FGR — Final Gear Ratio
GVW — Grose Vehicle Weight
.90 — Efficiency for all rear axles except we
then .35
lb. in. Terque — 12 times Torque in ib. ft.
.012 — 12 ib. per 1000 lb. Rolling Resistance

MAXIMUM NET ENGINE TORQUE

Torque in ib. ft.=.70 × cu. in. Piston Displacement. (This is approximate and should be used only when actual torque is not known.)

.70 — Average figure based on analysis of a number of torque curves

TORQUE AT PEAK HORSEPOWER

Torque at Peak HP = $\frac{\text{HP} \times 5252}{}$ RPM

5252 — Constant resulting from the conversion of torque and RPM into horsepower

HP — Maximum net horsepower (See Horsepower below)

Peak HP — Maximum useful horsepower

MAXIMUM NET TORQUE

Max. Net Torque = Torque at Peak HP \times 8

only when actual net to only when actual net to only when actual net to only only on the only of a number of torque curves

PISTON DISPLACEMENT

Piston Displacement in cu. in. = B \times B \times .7854 \times S \times No. of Cylinders

B — Bore
 S — Stroke
 Constant comprising the conversion of the area of a equare to the area of a circle of the same dimensions

FINAL GEAR RATIO

 $FGR = \frac{R \times GVW \times (GA + .012)}{R}$ ib. in. Torque × .90

GA — Grade Ability
GVW = Gross Vehicle Weight
ib. in. Torque — 12 × ib. if. Torque
R — Reiling Radius in Inches
.90 — Efficiency for all rear axies except, worm,
then .85
.012 — Rolling resistance on hard-surfaced reads

AMA HORSEPOWER

(For License Purposes Only)

 ${\sf B} \times {\sf B} \times {\sf No.}$ of Cyl. AMA HP -2.5

JOB TO DO WITH UNCLE SAM



Uncle Sam is tackling the biggest job of his life!

The auto mechanics' part in this job is twofold. Those in uniform must service the planes, army trucks, tanks, and jeeps—those on the home front must keep the vitally needed but ageing cars, trucks, buses and tractors going.

The job on the home front must be done with a serious shortage of experienced mechanics. Loss of automotive mechanics throughout the nation is estimated at 47%. The skill and ingenuity of the remaining experienced mechanics will be called upon as never before.

New hands must be trained. It is the patriotic duty

of old-timers to aid and encourage these willing but green workers.

Thompson Products has become one of the world's largest suppliers of vital precision parts for war engines. Yet thus far we have been able to maintain production of automotive replacement parts in a volume comparable to many pre-war years.

Good quality, long-lasting parts, and good workmanship in installing them have become more important than ever before.

THOMPSON PRODUCTS, INC. · Cleveland · Detroit · Los Angeles

In this Emergency Make More Use of the Machine
Shop Facilities Offered by TP Jobbers

See your Thompson Products golden

AAA

BVIOUSLY tax money will only do so much. Every pentsy the country or state highway department can save has a place somewhere else. Look at the picture. There is nothing unusual about it—in fact it's typical of thousands of miles of highway throughout the United States. The fact that it is typical is what makes it interesting. The fields are bare but ditches can't function because they are full of snow. Shoulders are loaded with banks piled

high by push plows and the melting snow turns the road into a ditch. In this soggy condition trucks and cars have churned the road to a mass of ruts

Here is spring road destruction in the making. Binder materials are passing off in solution. The shoulder is being weakened by saturation. Repair is going to call for material haulage—tax money—much of which could be saved.

It is Snogo's job to cut costs under conditions like this!

Use your Snogo to throw the snow into the fields where it can do no harm. Leave the ditches clear to function as they were designed to do. Clear away the banks left by your high speed and push plows make your roads "summer" safe and you'll find that the reduction in gravel haulege alone will go far toward paying

KLAUER MANUFACTURING COMPANY, Dubuque, lowa the cost of your Snogo.

MONEY



EVERY BUDGET - FROM A 11/2 TON TO THE LARGEST FOUR WHEEL DRIVE TYPE OF TRUCK



ODT NEWS

"Armed Forces" Exemption Ruling

Exemptions pertaining to the armed forces in ODT motor vehicle orders do not

apply unless the vehicle operators are under specific instructions given by a member or an agent of the armed forces which they are required to obey, Jack Garrett Scott, general counsel of the ODT, has ruled.

Priority for Truck Repairs Requested of Service Shops

Essential motor vehicle repairs should be given priority over repairs which may be put off without endangering safe operation or impairing mechanical life of the vehicles, according to John L. Rogers, Director of the Division of Motor Transport, ODT.

Mr. Rogers, in a letter to several national automotive organizations, called on garages and service establishments to voluntarily ration their facilities and mechanics' time so that essential repairs are given precedence.

Mr. Rogers' appeal was prompted by complaints from truck operators engaged in essential hauling that they are unable to have vital adjustments and repairs made on their vehicles because many garages and dealers are engaged in other work, much of it not of a pressing nature, such as the repair of bumpers, fenders, and

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For-Hire Joint Manpower Groups Grapple Problems

radiator grilles.

The Labor-Management Committee of the for-hire trucking industry in conference with officials of the Office of Defense Transportation last month reviewed reports from key cities in which local labor-management committees of the industry are functioning and agreed to extend organization of similar committees to eight other communities.

Cities in which local committees have been established are: Akron, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Denver, Detroit, Hartford, Kansas City, Los Angeles, Louisville, Minneapolis, New York, Oakland, Philadelphia, Pittsburgh, Portland, O.; St. Louis, Salt Lake City, San Diego, San Francisco and

Added to the list of key cities are Portland, Me.; Dayton, Ohio; Toledo, Ohio; Indianapolis, Ind.; Harrisburg, Pa.; Springfield, Mass.; Rochester, N. Y.; and Providence, R. I. Committees on which labor and management are equally represented will be set up in these areas to foster labor-management cooperation in dealing with problems facing the industry. As a part of their function, the committees will study manpower shortages and will consider establishment of training programs and possible additional measures for the preservation of equipment.

Surveys of personnel shortages and possible sources of additional manpower have been conducted or are now underway. Some of the committees have announced that in order to meet manpower shortages in the trucking industry, labor supply offices have been opened, and drivers working short time or engaged in non-essential activities have been urged to report at these offices for transfer to essential work on a part-time or full time basis. Studies are being made to determine causes of

(TURN TO PAGE 152, PLEASE)





You can get a new hat in 5 minutes



...but it may take <u>weeks</u> to replace a burnedout bearing...

The answer is
Preventive Maintenance
now with Shell
Automotive Lubricants





The vital war metals used in bearings are becoming increasingly hard to get. Deliveries on present stocks are questionable. Yet, there are operators who are trying to "stretch" their oil an extra 500 or 1,000 miles in order to "save time and oil."

Driving even the best-made oil beyond its limit of usefulness can cause low oil pressures, sludge, plugged oil lines and screens . . . ruined bearings.

Under today's peak-load conditions oil should be carefully watched, and in many cases changed more often than usual, depending on the type of service to which it is subjected.

Yes, changing the oil requires time. But the few minutes it does take may save days of delay later. Don't wait for a bearing failure. Call in the Shell man now. Let him help you plan your Preventive Maintenance.



First oil refinery to win Army-Navy "E"— Shell's Wood River Refinery

SHELL AUTOMOTIVE LUBRICANTS

ODT NEWS

(CONTINUED FROM PAGE 150)

absenteeism. Upgrading within the industry is being encouraged, and in a number of communities, labor and management representatives are working on replacement schedules.

A serious shortage of manpower in every phase of the industry was reported in Detroit where management and labor are cooperating in a wide-spread program to prevent the breakdown of trucking in that city.

Steps to prevent personnel pirating by other industries were discussed at the

meeting and it was agreed that more essential trucking jobs be filled from less essential activities in order that deliveries of war materials be kept moving prompetly. It was also decided that representatives of the War Manpower Commission and the ODT meet with committees of employers and employees in each region to consider problems arising from the drafting of men essential to the industry.

Private Carrier Labor-Management Committee Follow For-Hire Pattern

Organization of local labor-management committees for the private trucking industry was planned in the monthly conference of the Private Motor Truck Labor-Management Committee and officials of the ODT,

In general, the local committees will follow the pattern of the committees already established by the for-hire trucking industry in a large number of key cities. While the cities in which the local committees will be organized were not designated, it was indicated that for the most part they will be the same as those selected by the for-hire industry. The committees are being established, it was explained, to foster labor-management cooperation in dealing with problems confronting the industry. Particular stress will be laid on studies of manpower shortages and reserves and on the conservation of the industry's equipment.

Applicability of the forty-eight hour week order to private trucking was considered, and it was decided that the ODT should issue a bulletin discussing the order in relation to all transportation activities.

It was agreed that labor and management continue their cooperative efforts, particularly regarding the conservation of equipment, rubber and supplies.

Trade Group to Experiment With Manpower Training

Manpower shortages in the automotive maintenance industry have become so acute in recent months that training of new personnel, employment of women, and other measures will be necessary to keep essential motor transportation moving, the Automotive Manpower Committee representing the truck trade agreed in conference with officials of the ODT.

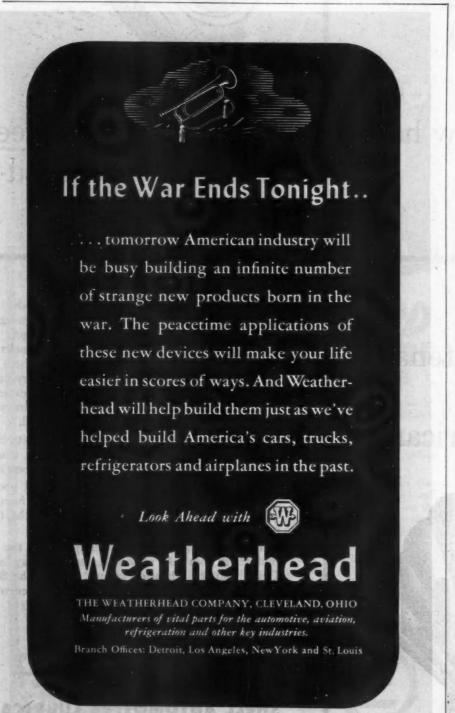
As an experiment in group training for the industry, a program will be inaugurated in Philadelphia in the near future, it was decided. If the experiment proves successful in that city, similar training programs will be introduced in other communities where shortages of maintenance employees threaten to impede motor transportation.

It was pointed out that maintenance work for trucks, buses and passenger cars is falling behind in many areas and that labor shortages are not the whole reason in many instances. Difficulty in obtaining parts, together with pressure upon repairmen to continue normal rapid service, add to the problems of repair shops. Some maintenance men, it was reported, are now attempting to arrange some system of priorities so that essential repairs such as motor reconditioning or bearing replacements come before bumper or fender jobs.

Discussed as possible measures to meet manpower shortages were the pooling of equipment and crews; training and upgrading of new employees, use of women wherever practicable, establishment of a system of priorities in repair work and obtaining the support of vehicle owners in having repair work done by appointment.

ODT 35-M.P.M. Modification Does Not Supersede State Laws

Joseph B. Eastman, Director of the Office of Defense Transportation, today advised the Governors of all States that the ODT's action of Mar. 1, modifying the 35-mile (TURN TO PAGE 155, PLEASE)





- 1. Model 80 Wet Type Valve Refacer
- 2. Ring Ridge Reamer

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- 3. Model EJ ECCENTRIC Valve Seat Grinder
- 4. Hydraulic Brake Hones
- 5. Piston Pin Hole Hones
- 6. Model H Cylinder Hone
- Valve Seat Inserter; made in power and hand operated models.

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YOUR Idea?

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There has never been anything finer than HALL tools and equipment and we intend there never shall be. Though our plant facilities have been increased again and again, and are operating day and night producing HALL precision equipment for war use, we're looking ahead. RIGHT NOW new and enlarged laboratory and engineering facilities are devoted exclusively to the development of new ideas in tools and equipment which will go into production the very day Victory is won. Watch HALL when it's over Over There!

THE HALL MANUFACTURING COMPANY, TOLEDO, OHIO



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ODT NEWS

(CONTINUED FROM PAGE 152)

speed limit and certain other motor carrier regulations in order to expedite emergency war shipments was not intended to allow trucks to exceed State speed or load limitations.

The Mar. 1 exemption order was designed to modify the Federal speed limit only, Mr. Eastman explained in a letter to each of the 48 governors.

Likewise, Mr. Eastman pointed out, it was not intended in general permits of Mar. 1 to permit overloading of these vehicles beyond the weight permitted by the State or locality in which the vehicle was operating.

When the ODT presented its expedited shipment plan to State representatives, however, it was anticipated that, for the 60-day trial period of the plan, State authorities would permit speeds equal to their respective maxima in effect prior to the national 35-mile speed limit of October 1, 1942, he said.

For-Hire Vehicles May Be Leased to Private Carriers

Joseph B. Eastman, director of the ODT, has amended General Order ODT No. 21 so as to enable the ODT to order control over commercial motor vehicles transferred from one carrier to another, regardless of the types of carriers involved.

The order, as originally issued, did not empower the ODT to require the renting or leasing of equipment by a common or contract carrier to a private carrier. The amendment removes this limitation of authority.

As in the original order, the amendment provides that unless the interested carriers agree upon the amount of compensation to be paid for the use of any vehicle leased or rented to another carrier at ODT's direction, the amount will be fixed by the ODT.

The amendment was issued, officials explained, to enable the ODT to arrange for fuller utilization of existing trucks and other commercial motor vehicles.

The amendment provides that the ODT may require the transfer of a commercial motor vehicle from one carrier to another when the ODT deems it to be "advisable or necessary to the prosecution of the war or to the maintenance of essential civilian economy or in the public interest . . ."

Vehicles Used for Testing Exempt from Provisions of 21

After Mar. 1 commercial motor vehicles used exclusively for testing purposes will not be required to carry Certificates of War Necessity, according to Exception Order ODT 21-6.

The ODT also waived the 35-mile speed limit, as of Mar. 1, for motor vehicles when being tested to meet Army and Navy standards and when used for training military or naval personnel in maintenance procedures. This order requires also that

all motor vehicles engaged in testing operations display the official ODT "V Emergency" pennant when exceeding the 35-mile speed limit.

Pay Disagreement No Excuse for Refusing J.I.O. Loads

Joint Information Offices should not give clearance statements to carriers who refuse to handle loads because of disagreement over compensation, according to the ODT.

A carrier who refuses a load offered through a Joint Information Office because the compensation is not satisfactory and then sends the truck out empty or partially laden is violating General Order ODT No. 13, the ODT said,

The proper procedure in such cases, the ODT has ruled, is for the carrier to handle the load and then to submit the disagreement over compensation to the ODT for proper determination.

Section 501.57 of General Order 13 provides that the division of revenue shall be as determined by the ODT, "except as may be otherwise provided by agreement between the interested carriers or prescribed by the Interstate Commerce Commission or by the appropriate State regulatory body."



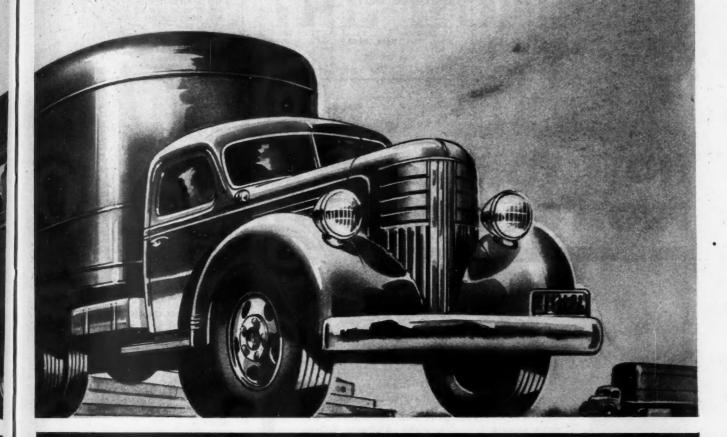
Jetting MEN TO



THESE TRUCKS
VITAL PART
IN THE WAR
DEPENDS ON
Parts!

When you install the specified Rich Valve in any engine, you can be sure that you are getting the very best valve money can buy for that particular engine. The all-important factors of design and material are backed by exhaustive testing in engines, both in the laboratory and on the road. Insist on Rich Valves—for tops in performance.

WORK!



Carrying war workers to their jobs is a task being shouldered in ever increasing proportion by motor transport. Your truck is an implement of war. Guard its performance by insisting on the best in motor parts. Deal with the jobber who displays and sells

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the Mc Quay: Normis Jobbens

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IN ALL PRINCIPAL CITIES. AMPLE STOCKS AND IMMEDIATE SERVICE ON THE PRODUCTS OF MCQUAY-NORRIS MANUFACTURING COMPANY, ST. LOUIS, MO.

LUBRICANT & COOLING SYSTEM CAPACITIES

CONTINUED FROM PAGE 47

L	UBRICA	ANT	Quarts	TRUCK MAKE AND MODEL		LUBRICANT CAPACITY			
Engine	Trans- mission Pints	Rear Axie Pints	Cooling S Capacity,			Trans- mission Pints	Roar Axio Pints	Cooling S Capacity,	
8 8 14	20 20 24	20 12 14	28 44 44	LE Series	8 5	10 6	8 41/2	23½ 16½ 16	
5	2½ 6	3½ 5	15 12	LG, LH Series		11 11 31/2	14 14 3½	16 18 2034 16 16	
	Engine Quarts	S 20 20 14 24	8 20 12 14 24 14	CAPACITY #160 Selection of the control of the contr	TRUCK MAKE AND MODEL Section S	CAPACITY STOCK CAPACITY STOCK CAPACITY STOCK CAPACITY CAPACIT	CAPACITY STATE CAPACITY CAPACI	CAPACITY STATE CAPACITY C	

HOW TO KEEP FROM GROWING OLD



Keep 'em Young

—that's the answer. Remove and Inspect Regularly—give them good care and they will last indefinitely.

Here's a sensible, effective and economical method for keeping ball and roller bearings young . . . it's the Ahlberg 3-Step Method with Croft Equipment:

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- 2. DRY—With air pressure—leaves a perfectly clean bearing, easy to inspect for wear.
- 3. REPACK—With a pressure grease packer which forces clean lubricant to every part and surface.

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BEARING COMPANY
Manufactures of CJB Manufactures

(CJB) Manufactures

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(CJB) Manufactures

TOHOU MAVE		LUBRICANT CAPACITY				
TRUCK MAKE AND MODEL	Engine	Trans- mission Pints	Rear Axio Pints	Capacity, (
DODGE—Cont. ME, RE Series (1937-38) MF, RF Series (1937-38)	5	8 6	81/2	18		
MG, MH, RG, RH Series (1937-38) ML, MK, RL, RK, RU Series (1937-38)	5	11	8	19		
TC (3-Speed Trans.) TC (4-Speed Trans.) TC (4-Speed Trans.) TD-15 (3-Speed Trans.) TD-15 (4-Speed Trans.) TD-20, TD-21 (3-Speed Trans.) TE (4-Speed Trans.) TE (4-Speed Trans.) TF (4-Speed Trans.) TF (5-Speed Trans.) TF, TH. TL, TK, RO, RP. TLD, TKD. VC, WC. VD-15, WD15 VD-20, VD-21, WD20, WD21 VF, VM, WF, WFM.	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8	14 31/3 31/3 31/3 31/3 4 4 61/4 11 a 10ab 7ac 7ac 31/4 41/2	2014 28 1514 17 2014 1914		
VL, VKD, WLD, WKD		11 11 11	10ab 14ac 14ac	2014 28 35		
FEDERAL 9 (1937-38) 10 (1937-38) 11, 11K, M11, 12K, M12, 14K, 11H, 14, M14 18, 15H, 15K, 16K, 17K, 18, 18H, 18K, 20, 20H, 20K	41	4	4 4 4 4	18 18 15 15		
19, 10H, 10K, 10K, 1/K, 6U,			8	25		
80H, 80K 29, 29K, 89, 69K 29H, 89H 25, 25H, 25K, 85, 85H, 85K C7, C3 40, 50, 40F 62 33 7M7 8M6 33, 90 48, 55, 92, 94	4 4 4 10 8 123 10 5 41	13 13 8 24 9 22 22 5	12 15 12 22 15 32 32 33 12 15	25 25 25 29 30 34 32 12 14 28 28		
FORD AA, BB, 4Cyl, (1929-34). BBV8 (1932-34). 51V8 (1938-36). 75V8 (1937). 79V8 (1937). 81T, 81TT (1938). 81Y (1938). 82Y (1938). 82C (1938). 82C (1938). 91T, 917T, 911W, 91W, 917W. 99T, 997T, 991W, 997W.	5 4 5 5 4 5	5 5 21/2 21/2 21/2	9	13½ 22 25 16 28 24 22 16 22 16		
997W (1939) 91Y, 91C (1939) 92Y, 922C (1939) O18T, O1T, O1W, O11W	. 84	3	7 3 3	24 22 18		
O88T, O9T, O9W, O91W 118T, 11T, 11W, 111W 119T, 19T, 19W, 191W O1D, O1Y, O1C (1940) O2D, O2Y, O22C (1940) 11D, 11Y, 11C (1941-42) 1ND, 1NY, 1NC (1941-42)		21/21/21/21/21/21/21/21/21/21/21/21/21/2	3	24 22 16 24 14		
FWD HS, HA. HG, HR. HM CUA. CU. SU, SUA, YU. M6. MJ6. MJ6X6. M7. M10 T26. T30. T32. T40. T60. T65.	10 10 10 10 10 11 11 12 20 20 21 11 11 12 12 12 12 13 14 14 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	16 16 16 24 16 22 24 22 22 22 22 22 22 22 22 22 22 22	666 866 866 867 1267 1267 1667 1667 1268 8687 1667 1667 1667 1667 1667 1667 16	26 30 30 30 30 30 30 30 3		
GENERAL MOTORS T14 (1937)		8 13	4 8	15		

"SAVE THE WHEELS THAT SERVE AMERICA"

Ask Your Chevrolet Dealer to check your truck



- Check and rotate tires
- **Check lubrication**
- Check engine, carburetor, bat-
- **Check brakes**
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- Chevrolet dealers have skilled, trained me-
- Chevrolet dealers have modern tools and equip-
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SERVICE ON ALL

LUBRICANT & COOLING SYSTEM CAPACITIES

CONTINUED FROM PAGE 158

TRUCK MAKE	LI	System Ouarts		
AND MODEL	Engine	Trans- mission Pints	Page Page	Capacity
ENERAL MOTORS—Cent. F16 (1937) T16H, F16H (1937) T18, T16H (1937) F18, F16H (1937) T23, F23, (1937) T23H, F23 (1937) T33 (1937) T33 (1937) T33H (1937)	6 6 7 6 8 8 7 6 7	7 7 4 4 7 7 7 7 7 7 7 7	814 814 614 615 10 13 13	15½ 15½ 16 16 20 20 20 20 20

TRUCK MAKE	LI	Ouerte		
AND MODEL	Engine	Trans- mission Pints	Rear Axio Pints	Cooling S Capacity,
GENERAL MOTORS—Cont. F33H (1937). T46 (1937). F48 (1937). T49, 400 (1937). T49, 400 (1937). T61 (1937). F61 (1937). T61H (1937).	6 12 10 12 10 12 10 12 10	Several axies and ~	able variation in a	20 28 28 34 34 34 34 34 34



Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

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ENGINEERING

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GENERAL MOTORS—Cont.
T14, T148, T15 (1938).
T16, F16 (1939).
T16, F16 (1939).
T18, F18H (1939).
T18, T18H (1939).
T23 (1938).
T23 (1938).
T23H (1938).
T23H (1938).
T23H (1938).
T33H (1938).
T33H (1938).
T33H (1938).
T33H (1938).
T33H (1938).
T31H (1938).
T45 (1938).
T45 (1938).
T46 (1938).
T51, T51H, F51, F51H (1938).
AC-250, AF-240, AF-241,
CC300.
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43 (1936-39).
D42 (1938-39).
D43 (1938-39).
D43 (1938-39).
D70K (1938-39).
93 (1938-39).
95 (1940-42).
15W (1940-42).
42W, 85W (1940-42).
42W, 85W (1940-42).
42W, 85W (1940-42).
92U (1940-42).
98 (1940-42).
99 (1940-41).
D99 (1940-41).
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CONTINUED ON PAGE 162

EXCELLENCE

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Belden

RAYMOND

DOUBLE

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WISCONSIN

CELORON

Wherever you are-Whatever you need-Whenever you need it-

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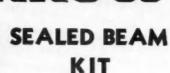
LUBRICANT & COOLING SYSTEM CAPACITIES

CONTINUED FROM PAGE 160

Ouer trans- Trans- Part Parts Parts Couling System Couling System				ystem Quarts	TRUCK MAKE	L	System		
	Cooling Capacity	AND MODEL	Engine	Trans- mission Pints	Rear Axie Pints	Cooling S Capacity,			
NTERNATIONAL—Cont. A8. D2, D15. D5. D30, D308, D303, D185T D330, D308, D5186T D38, D216T D35B DS36 DS216T	20 61/2 4 61/2 61/2 71/4 71/4 71/4	3 6½ 5½ 5½ 14 5½	24 4 4 7 17 10 10 17 16	42 15½ 14¼ 18 18 18¾ 18¾ 18¾ 18¾ 18¾	INTERNATIONAL—Cont. D40 D540 D50. DR50. D246, DTR246T D50, DR50. D8246T D60. DR60 DR70, DR346T D300 DS300 D500, DR500	714 714 10 10 10 10 614 614 10	14 14 14 19 19 19 51/6 51/2	10 18 16 17 16 16 7 17 16	2134 2134 2434 2434 28 31 1934 253







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MEDFORD, N. J.

TRUCK MAKE		UBRICA CAPACI		Ouerte
TRUCK MAKE AND MODEL	Engine	Trans- mission Pints	Rear Axie Pints	Cooling S. Capacity.
INTERNATIONAL—Cont. DS500. DR700. D246F. D346F. D346F. D428F AR828F M3. K1, K2 K3. K4. K54. K54. K55. K6. K77. K87 K88. K10. KR10 KR11 KSCOE KS5COE KST. KST. KST. KST. KST. KST. KST. KST.	22 4 53-2 53-2 53-2 53-2 53-2 73-4 73-4 10 10 10 10 10 10 10 10 10 10 10 10 10	5/2 5/2 5/2 5/2 5/2 5/2 11 11 11 18 18 18 5/2 5/2 5/2 11	17 16 16 16 16 16 16 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 18 18 17 18 18 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18	25_2_2_2_2_2_2_2\
KENWORTH 805. 506, 507, 508. 509. 510, 511, 519, 520, 549, 550. 512. 513. 514. 515. 516. 521, 522, 548. 823. 524. 525. 526. 527. 528. 538. 539. 540, 541. 542. 543, 544, 553. 546, 556. 557. 558. 554, 556. 557. 558.	200 66 18 18 18 20 20 20 9 9 9 9 9 9 8 6 6 9 9 9 9 8 8 8 8 8 8 6 6 6 6	16 18 12	12 16 10 10 10 10 11 10 11 12 11 20 10 11 12 11 12 12 13 14 15 16 17 17 17 18 11 18 11 18 11 18 18 18 18 18 18 18	32 32 32 32 32 32 32 32 32 54 54 54 36 36 36 36 32 32 32 32 32 32 32 32 34 54 54 54 54 54 54 54 54 54 54 54 54 54
LA FRANCE REPUBLIC C3. D4. E4. F4, H6 K1. M4. EH5B, EH5D. EH6B, EH6D. FH5B, FH6D. HH7. KH2. MH5	8 8 10 10 8 8 8 8	8 16 12 12 12 12 12 16 16 24	8 8 9 12 16 26 9 12 12 12 12 12 16	22 22 22 22 32 36 36 40 40
MARMON-HERRINGTON A10-4, A20-4 A30-4, A40-4, A50-4 TH300-4, TH310-4 TH310A-4, TH310A-6 TH315-4, TH315-6 TH320-4, TH320-5 B10-4, C10-4, B20-4, C20-4 C20-6, B30-4, C30-4, C30-8 B40-4, B40-6, C40-4, C40-6 B50-4	6 7 10 10 20 20 7		16 18 32 36 35 48 10	22 28 36 40 50 50 24

CONTINUED ON PAGE 164

ALL OUT!

LANDED SAFELY IN A BROWNIE BUILT BARGE

Linding their pretions carge of chemy above safely is the job of the Brownie Built Bances.

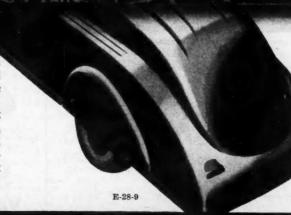
amashing gunfre and pounding and and battering brackesser ywhereamply justifies their extensive use today by our navy. And we at Brown Steel Tankwell, we're just mighty grateful that these barges we've made will take the lays there salely.

THIS IS FOR THE FUTURE

After the war, you're not going to be content with a steel tank that is merely a duplicate of pre-war tanks. You'll want a tank reflecting the huge strides that are being made now in advanced design and fabrication.

This new tank will be available from Brown Steel Tank Co. In fact, blueprints are ready even today, and our plant, with greatly expanded facilities, is ready to start production.

LOOK AHEAD NOW to what we plan to offer you tomorrow in up-to-the-minute steel tanks for all transport or storage purposes. Ask for special information.





BROWN STEEL TANK CO.

NOT AFFILIATED - ONE OFFICE ONE PLANT - MINNEAPOLIS MINNESOTA

LUBRICANT & COOLING SYSTEM CAPACITIES

CONTINUED FROM PAGE 162

TRUCK MAKE		LUBRICANT CAPACITY			TRUCK MAKE	L	System Quarts		
AND MODEL	Engine Ouerts	Trans- mission Pints	Rear Axio	Cooling S Capacity,	AND MODEL	Engine	Trans- mission Pints	Roar Axio Pints	Cooling
MARMON-HERR.—Cont. B80-4, C55-4, C55, DR4, C60-4, C60-6. B70-4, B70-8, C70-4	12	24 24	12	38 40 40	MARMON-HERR.—Cont. B8-6x4 LD1, LD14 C5A4, C5B4, C5A-4, C5B-4.	6 5	5 5	51/2 21/2	25 25
880-4, B80-6, C80-4, C80-6 TH415-4, TH415-6, TH515-4, TH515-6, TH420-4, TH420-6, TH520-4, TH520-6	12	24	20	50	C5-4, C6-4. C5-6, C6-6 (1937). E5-4, E6-4, E5-COE-4 (1938) E5-6, E6-6 (1938)	5 5 5 5	5 5 5	51/2 51/2 51/2 51/2	25 25 25 25
B5-4x4, B6-4x4, B5-8x4 B5-8x6, B6-8x6	5	5	14 51/2	25 25	LD3-4, OOT2-4, OT2-4, LD4-4, LLD4-4, OT3-4, OOT3-4	5	5	21/2	22



OUR ARMY'S MIGHT

RIDES ON COMPRESSED AIR

An army may march on its stomach, but its might rides on compressed air. Heavy artillery, tank busters, jeeps and troop carriers . . . yes, the greater percentage of

our army's vehicles are equipped with pneumatic tires. Therefore, tire care is an important part of military operations. To maintain greatest mobility, correct tire pressures must be maintained . . . flat tires must be prevented.

Schrader Tire Valve Caps play an important part in the battle against compressed air losses. Every day they are proving their ability to "take it" in the toughest kind of service—in desert heat—in tropic mud—in arctic cold. No dirt can enter . . . no air can escape through the valve fitted with an air-sealing valve cap.

NEW PLAN HELPS YOU AVOID FLATS

.

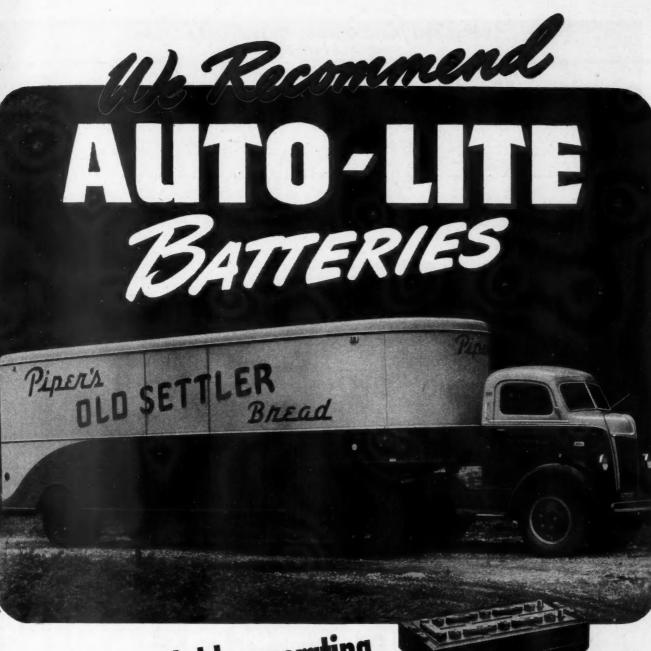
Check tire pressures before inflation to detect abnormal pressure loss—the signal that warns you of tomorrow's flat today. Write for complete information to Schrader, Box 240, Brooklyn, N. Y.



A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, BROOKLYN, N.Y.

TRUCK MAKE AND MODEL MARMON-HERR.—Cont. F5-4, FF5-4, F5-COE, FF5-COE-4, F6-4, FF6-4, H5-4, HH5-4, H6-4, HH6-4 F5-6, FF5-8, F6-6, FF6-6, H6-6, HH5-0, H6-6, HH6-4 J5-4, J6-4, JJ5-4, JJ6-4, JJ5-6, JJ6-8. LD5-4, LLD5-4, OT4-4, OOT4-5 514 24 5 5 51/4 24 5 5 51/2 24 5 5 21/2 24 LD6-4, LD6P-4, LLD6-4, LLD6P-4, OT5-4, OOT5-4 LLD8P-4, OT5-4, OOT8-4 (1942-43). 6LD8-4, 6LD8P-4, 6OT5-4 (1942-43). M5-4, MM5-6, M6-6, MM-6-4, M5-6, MM5-0E-4, MM5-COE-4, M8-COE-4, MM6-COE-4, M8-COE-6, MM5-COE-6, M8-COE-6, MM5-COE-6, (1942-43). 6M5-4, 6M6-4, 6M6-8, 6M6-8, 6M5-COE-4, 6M6-COE-4, 6M5-COE-4, 6M6-COE-6 8 21/2 22 5 5 23/2 5 23 51/2 6M5-COE-6, 6M6-COE-6 (1942-43) DSD-100-4, DSD-200-4 DSD-200-6, DSD-300-4, DSD-300-6 DSD-400-4, DSD-400-6 DSD-500-4, DSD-500-6 DSD-500-4, DSD-500-B4 DSD-800-4, DSD-700-6 DSD-800-4, DSD-700-6 DSD-800-4, DSD-700-6 DSD-800-4, DSD-900-6, DSD-900-4, DSD-900-6, DSD-900-4, DSD-900-6, DSD-900-4, DSD-900-6 56 5½ 10 17 24 10 6 7 7 10 10 10 19 20 14 24 ознкозн WLD. WLX. JCB. 23½ 23½ 111 30½ 30½ 30½ 30½ 30½ 30½ 23½ 23½ 20½ 10 p 10 p 21 p 21 p 21 p 21 p 21 p 19 q 18 n 18 28 22 22 40 40 28 40 40 40 25 25 38 44 46 46 46 46 46 46 36 FC-35 FS, FJ B3S B3D C3S C3D F,B, FC, FB-35 R₃S FD W200 W300, W304, W307 W705 BG3, GD, GDC REO 4H5, 4J5, 4K5 (1938-37)... 450 (1937). 650 (1937). 675 (1937). 1A4, 1C4 (1937). 1A4, 1C4 (1937). 1A4H, 1C4H, 1B4, 1D4 (1937). 1B4H, 1D4H, 2B4, 2D4 (1937). 2H5, 2J5 (1937). 3H5, 3J5, 3K5, 3HR5, 3JR5, 3KR5 (1937). 450, 450L. 475, 475L. 31 12 12 14 14 15½ 19 19½ 19½ 12 214 214 217 6 6 6 2 3½ 2 3½ 9 9 25 12 12 14 14 15½ 19 21/4 21/4 21/4 6 6 31/2 650, 650L. 675, 675L. 1A4, 1C4. 2 3½ 9 1A4, 1C4 1A4C, 1C4H, 1B4, 1D4 1B4H, 1D4H, 1BM7, 2BM7, 2B4, 2D4, 2L7M 2J5, 2H5, 2L4H, 2L7MH 1L5, 3J5, 3K5, 3HR5, 3JR5, 3KR5 4H5, 4J5, 4K5 19½ 19½ 15 999 25 12 (j) 12 15 15 15 12 12 12 15 8 12 12 16 14 12 12 3L6H 19, 20 (1941) 21 (1941) 22 (1941) 23 (1941) 31 17 17 18 19 17 17 17 19 18 27 19 18 8 11 12 8 8 12 20 24 11 11 23 (1941) 4D19 6D19 D20 23-H (1942) 25 (1942) 27 (1942) 22 (1942) 21 (1942)

CONTINUED ON PAGE 166



1st_for dependable operating
2nd_for dollar savings
Investigation

Put Auto-Lite Batteries in your fleet and see how you get two-way benefits . . . less trouble, lower costs. R. Fox tells you in his letter. "We have practically eliminated battery trouble as an out-of-service cause during three years' use of Auto-Lite Heavy Duty Batteries. And our

Duty Batteries. And our cost per mile is substantially lower. We heartily recommend Auto-Lite Batteries, first for dependable operation, and second for actual dollar saving."



Investigate this new kind of battery. In tests conducted according to S. A. E. standards, Auto-Lite Batteries made with "Activite" and Fibre-Glass outlasted batteries without these features two to one. Get the complete details. Ask your dealer, or write direct to

AUTO-LITE BATTERY CORPORATION

TOLEDO Manufacturing Plants at: OHIO
Niagara Falls, Indianapolis, Atlanta, Oakland, Oklahoma City, Toronto

Here's How OrdinaryBatteries Usually Wear Out—the positive plates shed their power-producing materials, growing weaker day after day, until power fails entirely.



And Here's How Sheets of Fibre-Glass Hold "Activite" — the amazing power-producing material, in the plates, to deliver full power long after ordinary batteries have worn out.

AUTO-LITE

AUTO-LIFE

IN ITS 26 GREAT MANUFACTURING DIVISIONS, AUTO-LITE IS PRODUCING A LONG LIST OF ITEMS FOR AMERICA'S ARMED FORCES ON LAND, SEA AND IN THE AIR

24 24

24

17

23

86

LUBRICANT & COOLING SYSTEM CAPACITIES

CONTINUED FROM PAGE 164

TRUCK MAKE	LUBRICANT CAPACITY TRUCK MAKE		L	System					
AND MODEL	Engine	Trans- mission Pints	Rear Axle Pints	Capacity	AND MODEL		Trans- mission Pints	Axio Pints	Cooling
TERLING FB50 Del. (1937-38) FB60 Del. (1937-38) FB70 Del. (1937) FC90 (1937-38) FB1130 FB-50 (1937) FD90 (1937) FD97 (1937) FD187 (1937) FC136 (1937)	8 8 8	6 7 8 9 11 24 24 12 12	8 8 14 16 14 15 11 15	22 22 22 22 23 32 32 32 36 36	STERLING—Cont. HC140 (1937). FD115 (1937). FC100 (1937). HC170. HCS210 (1937-38). FB70 (1938). FB80 (1938). FD90 (1938). FD97 (1938).	14 14 8	12 12 12 14 14 14 18 18 16 12	18 18 18 20 12 11 12 11 16	44 36 34 48 48 22 32 32 38



One requirement only is demanded of rubber tires for America's war vehicles: top performance under all conditions. Cooper tires are stoutly meeting this requirement on battle-fronts all over the world. They are basically the same tires many fleet owners, here at home, are depending on for round-the-clock movement of essential freight.

Could you ask for a better endorsement for the tires your trucks may need?





TOUGH, RUGGED DURABILITY

THE COOPER CORPORATION FINDLAY, OHIO

TRUCK MAKE	L	UBRIC/	ANT	Out of the last
AND MODEL	Engine	Trans- mission Pints	Rear Axlo Pints	Cooling 83 Capacity.
STERLING—Cont. FC135 (1938). HC140 (1938). FD115 (1938). FC100 (1938). HC200, HC185 (1938). HC250 (1938). FS1152 (1938). FW5152 (1938). FW5152 (1938). FW5152 (1938). MB75 (1939-42). MB75 (1939-41). MB85, MD85 (1939-42).	8 8 8 8 14 14 14 8 8 8 8 8 8	12 12 12 12 12 14 (k) 16 16 12 12 12 12	18 18 26 18 20 20 12 20 24 11 20 12	38 44 38 36 48 32 32 32 34 34 34 34
MB99, MD99, HBT128 (1939-41) HD105 (1939-42) HD110 (1939-42) HD115 (1939-42) JD135 (1939-42) JD137 (1939-42) HD145 HD165 (1939-42) HC115 (1939-42) HC115 (1939-42) HC115 (1939-42) HC115 (1939-42) HC115 (1939-42) HC115 (1939-42) JC145 HC145, HC166 (1939-42) HC175 (1939-42) HC185 (1939-42) HC185 (1939-42) HC200 (1939-42) HC200 (1939-42) HC200 HWS128, HDS128 (1939-42) HWS236S, HDS235S (1939-42) HWS236S, HDS235S (1939-42) HCS226	10 14 8 10 10 10 10 10 10 14 14 14 14 8	18 18 m 24 24 24 22 18 m 24 24 24 24 22 22 22 18 24 24 24 24 24 24 24 24 24 24 24 24 24	12 16 16 26 26 16 18 20 20 14 n 14 n 14 n 16 n 20 n 22 n 12 i 10 n	38
(1939-42)	14	22	10 n	
STEWART 40A, 60A (1938) 45A, 45AL, 45AS (1938) 47A, 50A (1938) 50AS (1938) 49A (1938) 51A (1938) 51A (1938) 58A (1938) 58A (1938) 58A (1938) 38-6 (1938) 31X (1938) 49A (1940-42) 58A (1940-42) 58A (1940-42)	8 9 9 4 8 8 8 8 8	6 6 6 6 6 6 20 20 28 12 16 16 18	3 2 5 10 8 8 6 6 10 10 16 20 22 24 16	15 18 24 26 26 24 18 26 26 28 31 26 26 28 31 26 28
STUDEBAKER J5 (1937) J15, J15M, J15B (1937) J20, J20M, J20B (1937) J20, J20M, J20B (1937) J30, J30M (1937) K5 (1938-40), L5 (1939) K10 (1938-40) K20, K20M, K20MB (1938-40) K25, K25M, K25MB (1938-40) K30, K30M (1938-40) Coupe-express (1942) Standard (1942) Heavy-duty (1942)	6 6 7 51/2 51/2 51/2 6 6 7 5 5 5	3	3 8 10 14 12 3 4 8 10 14 12 3 6	13 16 21 21 23 14 18 16 21 21 23 104 104 13
WALTER FN. FM, FKM (1940-42) FCK, FC (1940-42) FB, FBR (1940-42)	10	18 18 25 25	10 10 14 14	34 34 34 52
WHITE 60, 60K, 601, 602 61, 611, 612 500 510, 512 618 620 620K 621	13 6 6 14 22 22	8 8 7 7 7 22 8 8 8	10 16 8 8 8 8	25 26 22 18 20 32 30 32
621 K, 51AS, 63, 630, 630K, 631, 631K (44), 641 (1AB Engine) 640, 641 (1AB Engine) 641 (5A Engine) 641 (6A3 (1AB Engine) 642 643 (1AB Engine) 642 643 (1AB Engine) 642 643 (1AB Engine) 643 643 643 (1AB Engine) 643 643 643 643 643 643 643 643 643 643	22 28 22 28 28 28 22 28 22 22 22 22	8 12 40 40 12 12 40 12 40 7	10 10 10 12 12 17 17 17 22 22 10 12 8	30 30 30 30 30 30 30 30 30 31 23

CONTINUED ON PAGE 176

How and why to memorize Van der Horst

Think of a truck engine-

Focus your mind on the cylinder walls-

Think how they wear-

Van der Horst is the organization with the process that multiplies cylinder life. This not only extends engine life but also increases efficiency.

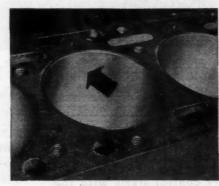
The process is PORUS-KROME.

It is the application of hard chromium, of controlled porosity and smoothness, to cylinder bores.

This is something new under the sun.

Yet not new. The process is well-proved here. It has also been in successful, regular use in Europe. Was brought to this country in 1939. Has now gained full recognition and acceptance here for critical war services.

You'll hear much more of PORUS-KROME.



PORUS-KROME is the precision application of hard chromium, having controlled porosity and smoothness, to internal combustion engine cylinder bores, and other bearing surfaces. The improved lubrication plus low friction adds greatly to both life and efficiency by decreasing wear and corrosion.



PORUS & KROME

Multiplies Engine Life

VAN DER HORST CORPORATION OF AMERICA . CLEVELAND, OHIO . OLEAN, N. Y.

ODT JOINT INFORMATION OFFICES

AMARILLO, TEXAS—200 North Fillmore St. Manager: Mrs. Lucille D. Gilley. Service charges: Clearance statement, 25c; assignment of traffic—one to 100 miles, \$1; 101 to 300 miles, \$2; over 300

to 100 miles, \$1; 101 to 300 miles, \$2, order accommiles, \$3.

ATLANTA, GA.—510 Chamber of Commerce Bidg.

Manager: R. S. Reese. Service charges: Charge for clearance or assignment of traffic or vehicles is based on number of trucks operated, as follows: 1 to 10 trucks—\$5 monthly; 10 to 20 trucks—\$7.50 monthly; 20 to 30 trucks—\$12.50 monthly; 30 to 50 trucks—\$15 monthly. Non-contributing or non-sustaining common carriers to pay for traffic diverted to them by or through the J. I. 0. at 10c per 100 lbs.

Location, address, management and service charges (in all available cases) of 69 offices approved by ODT as of Mar. 22, 1943. This listing will be kept up to date in future issues.

BALTIMORE, MD.—Room 507, 22 Light St. Manager: Walter Kneip. Service charges: \$1.
BENTON HARBOR, MICH.—169 Michigan St. Manager: Robert C. Stahl. Service charges: Clearance statement, 50c; Assignment of traffic, partial or full load—up to 199 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3.

BINGHAMTON, N. Y.—19 Chenango St. Manager: Carl W. Clark. Service Chargest Clearance

ager: Carl W. Clark. Service Unargem Clearance statement, \$1; Obtaining a load, \$2. BIRMINGHAM, ALA.—Comer Bidg. Manager: Sid B. Jones. Service charges: Clearance statement, \$1. \$2 to carrier utilizing or furnishing equipment 1 to 100 miles; \$4 for 101 to 300 miles; \$6 over 300

miles.

BUFFALO, N. Y. — 51 Earl Place. Manager:
Mrs. Marcella Mahan. Service charges: \$1 each
CANTON, OHIO—433 Tuscarawas St. W. Manager: Jennie Pollock. Service charges: Clearance statement, \$1; Assignment of traffic, \$2.
CHARLOTTE, N. C.—1723 N. Tryon St. Manager: W. D. Wilkinson. Service charges: Clearance statement, \$1; Assignment of traffic, 5c per 100
the: Minimum \$1

this.; Minimum, \$1.

CHICAGO, ILL.—10 North Clark St. Earl Girard, chairman, Board of Governors. Service charges; Clearance statement, 25c. Assignment of traffic—1 to 100 miles, \$1; 101 to 300 miles, \$2; over 300

CINCINNATI, OHIO—3129 Spring Grove Av. Manager: C. T. O'Dormell. Service charges: Clear-ance statement, 50c. Assignment of traffic—fell

ance statement, 50c. Assignment of traffic—full truck, \$1; less than full truck, 75c. CLEVELAND, 0H10—1814 Standard Bldg. Manager: Edwin C. Reminger. Service charges: Clearance statement, \$1; Assignment of traffic, \$2. COLUMBIA, S. C.—1316 Washington St. Manager: J. T. Outlaw. Service charges: No charge for clearance statement; assignment of equipment or traffic (partial or full load)—5c per 100 lbs. up to 4000 lbs. 3c per 100 lbs. up to 4000 lbs. 3c per 100 lbs. up to 4000 lbs. 3c per 100
traffic (partial or full load)—5c per 100 lbs. up to 4000 lbs.; 3c per 100 lbs. above 5000 lbs.; minimum charge, 50c; maximum, \$5.

COLUMBUS, OH10—3660 A.I.U. Bldg. Manager: Harvey G. Wagner. Service charges: Clearance statement, 25c; lease of vehicle, \$1; traffic assignment, \$1.

DALLAS, TEXAS—301 North Market St. Manager: Edwin R. Joyce. Service charges: Clearance statement, 25c; Assignment of traffic—one to 100 miles, \$1; 101 to 200 miles, \$2; over 200 miles, \$3.

DENVER. COLO.—410 Denham Bldg. Manager.

DENVER, COLO.—410 Denham Bldg. Manager: illiam A. Bosma. Service charges: Clearance statement, 10c; Assopnment of traffic, 25c per ton with inimum charge of \$1.
DES MOINES, IOWA-400 S.W. Ninth St. Man-

ager: John I. Petty. Service charges: Clearance state-

ment, 25c; assignment of traffic, \$1.

DETROIT, MICH.—1627 W. Fort St. Manager:
Carl S. Holecheck. Service charges: Clearance statement, 50c; Assignment of traffic, \$1.

EVANSVILLE, IND.—410 Third & Main Bldg.

EVANSVILLE, IND.—410 Third & Main Bldg. Manager: Leslie Lacroix. Service charges: Clearance statement, 50c; Assignment of traffic, \$2.50. FARGO, N. D.—406 First Natl Bank Bldg. Manager: W. H. Clemens. Service charges: Clearance statement, 25c; Assignment of traffic—up to 100 miles, \$1; 101 to 200 miles, \$2; over 200 miles, \$3. In lieu of above charges, a carrier may elect to pay on a monthly basis of \$2 a month.

-509 Harrison St. Manager: Miss

FLINT, MICH.—509 Harrison St. Manager: Miss Ann Marvosh. Service charges: Clearance statement, 50c; Assignment of traffic, \$1. FORT WAYNE, IND.—826 Ewing St. Manager: Scott E. Weller. Service charges: Clearance state-ment, \$1; assignment of traffic (partial or full load), \$1; lease of equipment, \$1. FORT WORTH, TEXAS—701 Pecan St. Manager:

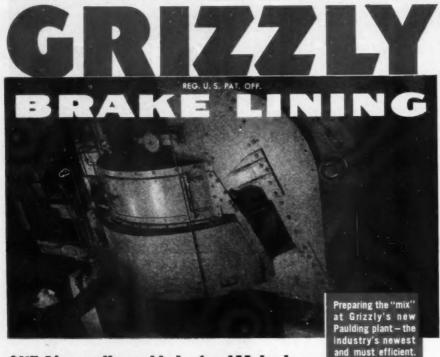
Service charges: Clearance statement 25c; Assignment of traffic—up to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3.

FRESNO, CALIF.—1837 Merced St. Manager: Harry R. Gayford. Service charges: Clearance state-ment, 25c; Assignment of traffic, partial or full

load. \$1.
GRAND RAPIDS, MICH—Norris Bldg—Suite 6.
Manager: Howard H. Harlow. Service charges: Clearance statement—from one to 10, \$1.50 each; 11 to
50, \$1 each; 51 and over, 50c each. Assignment of
equipment or traffic, \$1.50.
GREELEY, COLO.—1st Ave. & 18 St., Reed's
Corner at Produce Bldg. Manager: Miss Sera Anderson. Service charges: Clearance statement, 10c; Assignment of traffic—25c per ton with minimum charge
of \$1.

HAGERSTOWN, MD .- 113 W. Washington St. Manager: Miss Betty M. Winn. Service charges: Clearance statement, 25c. For carrier having freight to transport or for carrier transporting freight, \$1 (\$2 per contract).

(TURN TO PAGE 170, PLEASE)

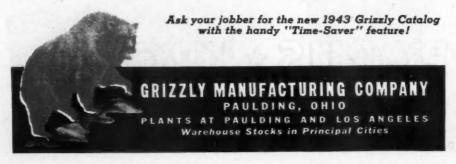


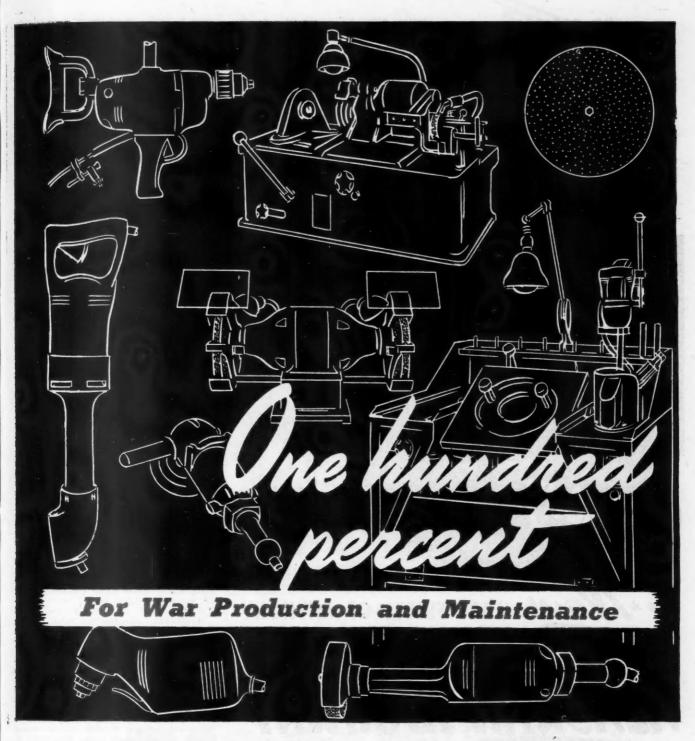
ONE Line · all moulded · for ALL brakes

One quality—the finest! One kind of performance-long-lived and efficient! All Grizzly Brake Linings are manufactured with the same painstaking care.

Quality control starts with the "mix" of raw materials and, through each succeeding step of aging, moulding, curing, machining and inspecting, adherence to Grizzly's rigid standards of quality assure the finished product to be the finest of the brake lining industry. The Grizzly line is complete for the needs of all shops as well as for all brakes-Rolls; Segments, drilled or undrilled, in bulk or in packaged sets; Heavy Duty Blocks; External and Internal.

Start now using Grizzly. Notice how Grizzly precision manufacture saves time on each reline and reduces adjustment labor to the vanishing point.





SIOUX TOOLS are doing their "bit" where performance counts most, viz.: the production front where the steadily increasing volume of war equipment is streaming from plants and the maintenance front where Aeroplanes, Tanks, Trucks, Torpedo Boats, Jeeps, etc., are serviced. SIOUX TOOLS have "What it takes for long punishing service" and a little care will make yours last longer.

SIOUX TOOLS

STANDARD THE



WORLD OVER

SIOUX CITY, IOWA, U.S. A

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JIO OFFICES

(CONTINUED FROM PAGE 168)

HOUSTON, TEXAS-1006 Washington Ave. Manager: B. Frank Johnson. Service charges: Clearance statement, 25c; Traffic assignment up to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles \$3.

\$1; 101 to 300 miles, \$2; over 300 miles \$3. INDIANAPOLIS, IND.—611 K. of P. Bldg. Manager: Mrs. Catherine L. Goldsboro. Service charges: The minimum assistance or service charge is \$5. In addition, there is a charge for each clearance statement over and above four per month—25c. Assignment of traffic—1 to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3. KANSAS CITY, M0.—1200 Genessee. Manager: Paul M. Landsberg. Service charges: Clearance statement, 25c. Assignment of traffic,* 25c. *Option: Annual hasis. \$18.00 ner year.

nual basis, \$18.00 per year.

LANSING, MICH.—315 Hollister Bldg. Manager: H. C. Kuhnert. Service charges: For each service rendered—50c.

LOS ANGELES, CALIF.-122 E. 7th St. Manager: George G. Grant. Service charges: Clearance statement, 25c; Assignment of traffic, \$1.

ment, ZSC; Assignment of tramc, \$1.

LOUISVILLE, KY.—701 Republic Bldg., 5th & Walnut Sts. Manager: Lew Ullrich. Service charges: Clearance statement, 25c. Assignment of traffic*—1 to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3. Assignment of empty equipment*—1 to 150 miles, \$1; over 150 miles, \$2. (*AAA milesge shall movern.) mileage shall govern.)

LUBBOCK, TEXAS—1801 Texas Ave. Manager: W. D. Benson, Jr. Service charges: Clearance statement, 25c; Assignment of traffic (partial or full load)—up to 100 miles, \$1; 101 to 300 miles, \$2; 300 miles, \$3

MANSFIELD, OHIO-3 N. Main St. Manager:

James L. Eberly. Service charges: Clearance state.

James L. Eberly. Service charges: Clearance statement, 50c; Assignment of traffic, \$2.

MASON CITY, 10WA—317 Ninth Street, S. E. Manager: F. G. Cookman. Service charges: Cearnas statement, 25c; Full or partial load, 75c.

MEMPHIS, TENN.—870 Linden Ave. Manager: Charles C. Thomas. Service charges: Each clearance statement issued in excess of four per calendar month—50c each. Assignment of equipment or traffic— 100 miles or less, \$1; 101 to 300 miles, \$2; over 300 miles, \$3.

MILWAUKEE, WIS.—1139 W. Canal St. Manager: Earle D. Healy. Service charges: 25c for each service rendered; \$5 for each Service Coupon Book (20

MOLINE, ILL.—301 Ninth St. Manager: Thomas H. Smith. Service charges: Clearance statement, 25s. A carrier furnishing equipment for the movement of traffic from one to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3 (AAA mileage shall govern). In lieu of the above charges, carriers may elect to pay a flat rate per month (payable in adva is \$5 for common carriers, \$3 for contract carriers and \$2 for private carriers.

MUSKOGEE, OKLA .- 207 Municipal Bldg. Wanager: Ted Schwachhofer. Service charges: Clearance statement, 50c. Office will receive 5% of total transportation charges assessed.

NASHVILLE, TENN.—619 4th Ave. S. Manager:

Mrs. Loretta B. Hickey. Service charges: Clearance statement, 25c; Assignment of traffic, 5c per 100 lbs.

statement, 250; Assignment of traffic, 5c per 100 lbs. with a minimum of \$1 and a maximum of \$7.50 to be paid by carrier receiving freight. Two dollars to be paid by the lessor of a motor truck.

NEW ORLEANS, LA.—1461 Magazine St. Manager: Robert Matthews. Service charges: Clearance statement, 25c; Assignment of traffic or vehicle—1 to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3. (AAA mileage to govern.)

NEW YORK, N. Y.—90 West St. Manager: Harold Connor. Service charges: For each service rendered, \$1.

OKLAHOMA CITY. OKLA.—Public Market Bidg.

OKLAHOMA CITY, OKLA.—Public Market Bldg., 311 S. Klein St. Manager: Fred M. Cline. Service charges: Clearance statement, 25c; 50c by receiving

carrier for less than truck-load traffic; \$1 for all truck loads obtained up to 100 to 101 miles; \$2 for all truck loads obtained up to 101 to 300 miles; \$3 for all truck loads obtained over 300 miles, \$4 deposit of from \$5 to \$10 will be requested from each participating carrier which will be credited to its account as it uses the services of the office.

OMAHA, NEB .- 2615 N Street. Manager: H. F.

Lindberg. Service charges: Clearance statement, 25c; maximum charge of \$2 per month per operator.

ORANGE, CAL.—302 W. Maple St. Manager:
J. D. Spennetta. Service charges: Clearance statement, 25c; where tonnage is obtained the charge will be \$50' of the recover recovery.

PHOENIX, ARIZ.—45 W. Lewis Ave. Manager:
Robert F. Goff. Service charges: Clearance statement,
25c; assignment of freight, based on length of trip— 1 to 100 miles, \$1; 101 to 300, \$2; over 300, \$3.

PITTSBURGH, PA.—Fort Pitt Hotel. Manager: Robert E. Cox. Service charges: Clearance statement, 35c; Assignment of traffic (full or partial load)—up to 300 miles, \$1; over 300 miles, \$2.

PORT HURON, MICH.—1231 Twelfth Ave. Manager: Ralph Miller. Service charges: Flat charge of \$1 each for each service. Where credit is established, the following is in effect: From 1 to 3 services, \$1 each; Four services, 75c each; All services over four,

PROVIDENCE, R. I.—Room 503, 85 Westminster St. Manager: Francis E. Nute. Service charges: Clearance statement—empty vehicle 25c; Traffic assignment. \$1.

PUEBLO, COLO .- 211 W. 5th Street. Manager: Esther M. Santmyer. Service charges: Clearance statement, 10c; Assignment of traffic, 25c per ton with a minimum charge of \$1.

ROCHESTER, N. Y.—15 Circle St.
ROCKFORD, ILL.—121 Loomis St. Manager:
Theodore H. Nelles. Service charges: Clearance statement, 25c; Assignment of traffic or vehicle—1 to 100 miles, \$1; 101 to 300, \$2; over 300, \$3.

ST. LOUIS, MO.—Room 228, Claridge Hotel. Manager: Bernard Feuerstein. Service charges: Clear-ance statement, 25c; Each registration of traffic to one destination, 25c; Minimum initial deposit, \$2.50.

ST. PAUL, MINN .- 1957 University Ave. ager: Lou Hoskins. Service charges: 10c registra-tion fee for each vehicle. No additional charge for clearance statement. When a carrier receives a load of freight through the Joint Information Office, the charge will be 5% of the revenue accruing to such carrier, with a minimum fee of 25c. This latter fee will be in addition to the 10c registration fee.

(TURN TO PAGE 172, PLEASE)



BODIES FOR THE -

ALASKAN HIGH

I believe there has never been a contract handled as well in the history of industry, as you handled this.

I am personally very proud of their performance.



Anthony's Army-Navy "E" is the FIRST such award to any company in the hoist and body field.

ANTHONY COMPANY, STREATOR ILLINOIS

"NOW IN OUR 95th ANNIVERSARY YEAR"

The second secon

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BUILT to SERVE

...and engineered specifically for commercial vehicles. Willard Commercial Batteries are aiding thousands of essential trucks, buses and tractors in their vital wartime job. These high quality Willards are equipped with thick, heavy plates, rugged containers, dual insulation, and exclusive "Safety-Fill" construction. They are built to serve—today and tomorrow tool

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COMMERCIAL BATTERIES

have the power to carry on!

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JIO OFFICES

(CONTINUED FROM PAGE 170)

SACRAMENTO, CALIF.—4850 Stockton Blvd. Manager: T. M. Fitzgerald. Service charges: Clearance statement, 25c Assignment of traffic, partial or full load, \$1.

load, \$1.

SAN ANTONIO, TEXAS—603 N. St. Mary's St. Manager: D. R. Thomas. Service charges: Clearance statement, 50c; Assignment of traffic—1 to 100 miles, \$1; 101 to 300, \$2; over 300, \$3.

SAN DIEGO, CALIF.—863 Seventh Ave. Manager: Mrs. Lucille H. Cunniffe. Service charges: Clearance statement, 25c; Loading of freight, \$1.

SAN FRANCISCO, CALIF.—57 Post St. Man-

ager: Frank K. Clifford. Service charges: Clearance statement, 25c; \$1 for load or partial load. SIOUX CITY, IOWA—119 Livestock Exchange Bldg.

nnahan. Service charges: Clearance statement, 5c; 10c for each partial or full load.

SOUTH BEND, IND .- 802 S. Lafayette St. Manager: James E. Gilroy. Service charges: Assignment of traffic or vehicle—1 to 100 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3. Clearance statement, (AAA mileage to govern.)

SPOKANE, WASH.—512 Columbia Bldg. Manager: R. P. Corolus. Service charges: Clearance statement, 25c; Assignment of traffic—up to 100 miles, \$1; 100 to 200 miles, \$2; over 200 miles, \$3. miles, \$1;

SPRINGFIELD, 0H10—Chamber of Commerce Bldg. Manager: Guy L. Cory. Service charges: Clearance statement, 50c; Assignment of vehicle or traffic, \$1.

STOCKTON, CALIF.—1327 S. Wilson Way. Manager: Oren A. Howard. Service charges: Clearance statement, 25c; Assignment of traffic, partial or full

SYRACUSE, N. Y.—351 South Warren St. Mana-ger: Joseph C. Fields. Service charges: Clearance statement, 50c; Partial load, \$1 per vehicle; Full load,

WAUSAU, WIS .-- 105 Prospect St. Manager: Franklin H. Seefeldt. Service charges, 25c each.
WHEELING, W VA.—34 14th St. Manager: Franklin H. Seefeldt. Service charges, 25c each. WHEELING, W VA.—34 14th St. Manager; Richard E. Fuqua. Service charges: Clearance statement, 25c; Assignment of traffic—1 to 190 miles, \$1; 101 to 300 miles, \$2; over 300 miles, \$3; YORK, PA.—1339 E. Philadelphia St. Manager; George W. Forrest. Service charges: Clearance statement, 35c; reporting one or more loads to be moved.

25c; receiving lead, \$1; receiving from half to

YOUNGSTOWN, OHIO—220 Hubbard Road. Manager: Merle H. Fullerton. Service charges: Clearance statement, 50c; Lessee of vehicle pays \$1 for use of vehicle up to 100 miles; \$2 for 101 to 300 miles; and \$3 over 300 miles.

QUIZ ANSWERS

(Questions on Page 136)

1. a. The SAE classification number should be higher as the weather gets warmer. SAE numbers designate the viscosity or fluidity of an oil, and it is possible to use a heavier or less fluid oil in warm weather than in cold weather.

2. a. Pennsylvania oil normally appears dark green and rather opaque. At one time the color was a good indication of the origin and quality of an oil, but today's advanced technical knowledge makes it quite easy for a refiner to alter the color of any oil.

3. b. It is usually advisable to introduce a lubricant into a bearing at the low pressure area of the bearing. If it were introduced at the high pressure point, the pres-

sure would force it back out of the bearing.

4. c. It is important to keep the crankcase ventilated to keep the gaseous vapors from condensing and forming water. This water mixes with dust, dirt and impurities to form "sludge." Modern engines are designed to dispel these gases before they have a chance to condense and do harm.

5. c. Seven NLGI (National Lubricating Grease Institute) grades, from No. 0 to No. 6, standardize greases according to their worked penetration specifications.

6. b. The milk delivery truck, because its operation consists of very short runs, so it is seldom that the motor really gets heated

7. b. Gears. Extreme pressure or E.P. lubricants are special gear lubricants that counteract the severe pressures, speed, heat, and sliding action of the gear teeth.

8. a. 1912. Previous to that time, oils were graded as "light," "medium," "me-"medium heavy," "heavy," and "extra heavy." There was considerable confusion, because one refiner's "medium" oil might have the same viscosity as another's "heavy" oil.

9. a. It designates an oil that is suitable for winter use, having met viscosity limiting specifications at 0° F.

10. It must lubricate-to make surfaces slippery. It must cool-to carry away excess heat. It must seal-to hold in combustion gases. It must cleanse-to keep the various parts clean.

Raymond G. Ellis Dies

Raymond G. Ellis of the Advertising Department, The Electric Storage Battery Company, Philadelphia, died Feb. 14. He had been convalescing from an operation, when seized with an unexpected heart



FERODO & ASBESTOS, INCORPORATED . NEW BRUNSWICK . N. J.

Truck Parts Are Hard to Replace... Lost Hours Can Never Be Recaptured!

... Proper Care "Keeps 'Em Rolling!"



Alemite Power Lubrication Speeds Greasing—Prevents Breakdowns ... Steps Up War Transportation!

THIS IS NO TIME to skimp on truck care. A dollar "saved" by "short-changing" your truck on frequency of service—or on quality of service—may cost a hard-to-get part. What's more, it may tie up a vital load for hours—throw a factory's war production schedule out of kilter—may actually cost the lives of American boys "on the other side."

Leading fleet owners everywhere are cutting priceless minutes from each truck lubrication with the aid of fast, accurate, positive Alemite Power Lubrication. Trucks getting this kind of regular service "keep rolling" longer! They are less likely to call on our country's diminishing stock of precious repair parts.

There is an Alemite Power Gun of the correct size to service your fleet—large or small—efficiently and economically—to guard bearings and speed your war transportation contracts. For complete facts, write, wire, or phone us direct.



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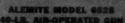




duty pumps available for high or low pressures. Handle heavy greates direct from original drums compacity to serve several outlets.

ALEMITE MODEL 6190

Delivers 12 ounce sold lubricant per sold lubricant per high pressure. Nitralloy high pressure piston and cylinder, theavy duty universalmotor; easily portable; complete with hose and valve.



Operates on 100 to 150 lbs. air; handles



times air presure
used; exclusive
helix arm and
worm assures
positive prime
—no air
pockets.

TRUCKS AND TIRES WEAR FASTER AT 35 M.P.H.

Tests Show Brakes Applied 107% More Often at 35 Than at 45 M.P.H.; Gear Changes Up 47%; Trips Take 19% Longer; Gas Consumption Up 3.8%

Trucks and truck tires wear out more quickly when driven at a maximum speed of 35 mph. than at a normal 45 mph. limit it was disclosed as a result of tests recently conducted with the approval of the War Department by Associated Transport, Inc.,

which operates 3,500 vehicles from New England to the Gulf of Mexico. The tests were made to determine the effect of the 35 mph. speed limit on engine and tire wear, gasoline consumption and time required to complete runs. They were de-

vised and conducted by Harold C. Davis and James N. Johnson, respectively directors of operations for the Northern and Southern Divisions of Associated Transport, Inc., and Jas. A. Barnwell, director of maintenance.

The tests showed that brakes are applied 107 per cent more often at the lower speed with consequent increase in tire and brake lining wear. Gears are changed 47 per cent more frequently at 35 mph., resulting in greater engine and tire wear as well as gasoline consumption. It took 19 per cent longer to make the test runs at 35 mph. than at 45 mph. maximum.

These results were instrumental in the promulgation of regulations which went into effect Mar. 1 permitting trucks to exceed the 35 mph. speed limit when flying special pennants showing that they are

carrying vital war freight.

Commenting on the findings of tests, Mr. Barnwell pointed out that "a 35 mph. speed limit wears truck tires out faster when going both downhill and uphill. Downhill, the lower speed limit requires more braking. Uphill more pulling power must be exerted because less momentum has been developed with which to climb the hill. And traction wears out tires whether it is braking traction or pulling traction."

Mr. Barnwell called attention to the fact that at 35 mph. maximum speed gears were changed 47 per cent more often and lowest gear (many trucks have four gears forward) was used 60 per cent more frequently than at 45 miles per hour, with a corresponding increase in engine as well as tire wear.

According to Mr. Barnwell the greater use of low gear, as in the case of tire wear, was due to the inability at 35 mph. to develop sufficient momentum on downgrades and level runs. As a result, he said, hills which might otherwise be negotiated in high must be climbed in low or even lowest gear. And engine wear is far greater when operating in low than when operating in high gear, he pointed out.

The tests showed a 3.8 per cent increase in gasoline consumption at 35 mph. maximum, due primarily to the increased use of low gear. But because heavier loads were carried on the 45 mph. runs the additional fuel consumption per ton-mile increased 5 per cent.

Mr. Davis, director of operations of the Northern Division, discussing the increase of 19 per cent in the time required to complete the trips at the lower maximum speed, pointed out that it reduced to that extent the amount of freight that a truck could handle. "It is like taking one out of every five trucks out of service." He said that over 75 per cent of Associated Transport's traffic consisted of war freight and that the same was true of many other carriers.

Mr. Johnson, in charge of Operations for the Southern Division, applied the same analogy to the manpower situation. "It is just as though a man took six days to do a job that normally requires only five," he said. With the manpower situation reaching a critical state the additional time required by drivers to complete their runs

(TURN TO PAGE 176, PLEASE)



• The DuGas Dry Chemical Fire Extinguishing Unit consists of two tubes, each containing seven pounds of DuGas powder—each contained in a bracket suitable for mounting on trucks. Price of unit, \$6.50 f.o.b., Marinette, Wisconsin.

DuGas is a *dry powder chemical*, moisture resistant and free flowing. Extinguishes fire efficiently.

Dugas is barmless to motors, mechanical parts, materials, everything but flame. It is non-abrasive, non-corrosive, non-poisonous.

Always ready. Will not cake, harden, evaporate, spoil or deteriorate. Will not give off toxic gases. Will not conduct electricity.

dated December, 1942.

This unit complies with the recent-

ly amended rule No. 3.3491 (A),

Motor Carrier Safety Regulations,

Revised, of the I.C.C., and meets

the requirement of the Under-

writers' Laboratories, Inc., war

emergency specification No. 299,

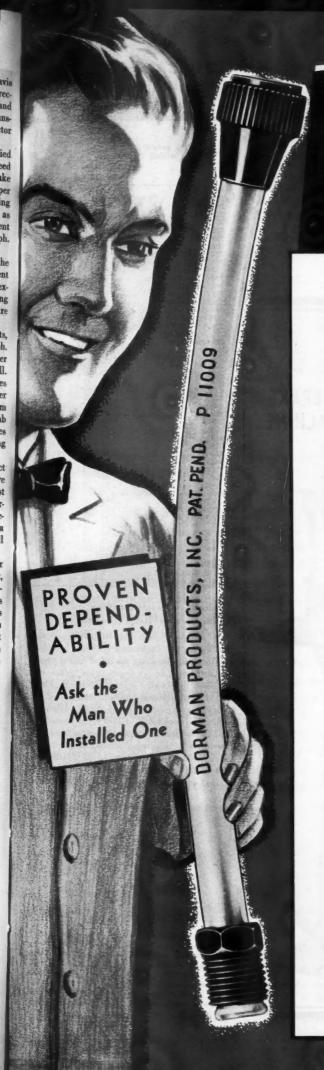
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DORMAN

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FUEL LINES

FOR ALL POPULAR TRUCKS AND CARS

The Line That Is Here To Stay!

DORMAN PLASTIC FUEL LINES,

after a year of proven service, have placed a permanent improvement in fuel-line replacements at the fingertips of every progressive automotive service and maintenance man.

• DORMAN PLASTIC FUEL LINES

were originally created, of course, to make more Copper, Brass, Rubber available for the tools of Victory...tanks, guns, ships, planes! But that stage already is past: Today, DORMAN PLASTIC FUEL LINES are considered the immediate necessity in fuel-line replacement.

 Your DORMAN JOBBER is prepared to make immediate delivery.

PURCHASE DORMAN PLASTIC TUBING AND FITTINGS
WHERE COPPER AND BRASS WERE FORMERLY USED



Dorman Plastic Tubing is boxed in 25-ft. coils



DORMAN PRODUCTS INC.

CINCINNATI, OHIO

TRUCKS & TIRES WEAR FASTER AT 35 MPH

(CONTINUED FROM PAGE 174)

at the lower speed limit represents an important loss, he indicated. "Furthermore, the driver naturally feels entitled to extra pay for the additional time it takes him to complete his run, yet neither the trucking companies nor the shippers are in a position to bear the cost," he added.

Six different makes and eight different

Six different makes and eight different models of tractors were used to pull the trailers on ten test routes. The trailers carried loads varying from 14,310 pounds to 32,366 pounds. Since the tests were conducted in the course of the company's regular operations, loads could not be exactly balanced. The 45 mph. runs were handicapped to the extent of 655 ton-miles more than were carried at 35 mph.

Two round trips were made on each route, using the same equipment for both trips. One roud trip was made at each speed limit. Tire pressures and carburetor settings were exactly the same at each speed. The same drivers were used for each speed. Separate sets of figures were kept for the outbound and the return trips, a total of 40 one-way trips, 20 at each speed.

LUBRICANT & COOLING CAPACITIES

(Continued from page 166)

TRUCK MAKE AND MODEL		LUBRICANT CAPACITY		
		Trans- mission Pints	Rear Axle Pints	Cooling S Capacity.
WHITE—Cont.	1 40	-		
700K	12	7	16	23
703, 704	12	51/4	11	17 23
704K		12	11	23
705	12	51/2	10	23
707	121/2	12	14	17
708. 709 (11A Engine)		81/2	11	23
709 (13A Engine)		12	11	25
710 (30A Engine)	121/2	12	11	23
710 (13A & 16A Engine)		12	11	25
712 (9A Engine)	91/2	12	14	25
718 (16A Engine)	12	12	12	25 25
718 (30A Engine)	121/2		20	23
720, 720T (14A Engine)	18	26	16	32
720, 720T (15A or 18A Engine)	18	26	22	32
722 (15A Engine)	18	26	16	32
722 (25A Engine)		26	22	32
750T			10	24
800, 802		8	8	18
804		8	8	22
805	12	8	10	23
809, 810, 812	12	12	11	28
818 (16A Engine)	1214		12	25
820, 822		24	22	32
850	121/2		22	25
904		51/2	81	23
918		12	101	25
920		26	12 i	32
942	22	40	201	32
950	121/2		10 1	23
991	22	40	20 i	31
White Horse (32A Engine)			6	
White Horse (35A Engine)		3	6	07
WA14, WA114	12	81/2	18	27
WA20, WA120, WA16		13	22	31
WA22, WA122	12	20	11	31
WA26, WA126, WA34, WA134	12	20	22	31
WA2064		13	81	31
WA2264	. 12	20	121	31
WILLYS				
38, 48, 4-40, 4-40P		1	3	11
441, 441P, 442, 442P		1 1	4	12

Highway Officials Propose Billion-a-Year Road Program

A proposed post-war highway program calling for the expenditure of not less than a billion dollars a year of Federal funds for a period of at least three years was outlined to Major General Philip B. Fleming, Federal Works Administrator, by the American Association of State Highway Officials. Brady P. Gentry, chairman of the Texas State Highway Commission and president of the association, told General Fleming that expenditure of \$1,000,000,000 yearly in highway construction would give work for a year to approximately 750,000.



Highlight of the ceremony at which the Trailer Company of America, Cincinnati, Ohio, was awarded the Army-Navy "E" for production efficiency. Shown above are, Col. G. E. Strong, David R. Calhoun, Jr., Trailmobile president; veteran employee Bill White, 79; J. J. Black, Trailmobile vice president, and employee representatives, Miss Janet Boerger and Lou Orleck

Five Units In One STAR No. 36 UNIVERSAL BRAKE RELINING MACHINE

Properly lined brakes are essential to the efficient and economical operation of Motor vehicles and efficient relining equipment is the only sure way to assure that result. Here is a machine that has all of the time saving, cost reducing features listed below and at a low price.

- 1. Individual Deriveter and Old Rivet Receptacle
- 2. Powerful Riveter with Semt - Automatic Tube Feed
- 3. A Quick Adjustable Ball Bearing Countersinker
- 4. Full Adjustable Large Size (51/4") Brake Shoe Grinder
- 5. High Speed Vacuum Dust Collector for Grinder

Write for full information

The outstanding features and low price of this machine will bear investigation before you buy any machine.

& TOOL CO.

203 6th St. SE.

Minneapolis,

Minn.





Breathes"

• Heat-Vents in this amazing Seiberling Truck and Bus Tire not only expel the dangerous internal heat which causes so many tires to die young — they "breathe in" cooling air with each revolution. That's why thousands of these tires can stand up longer under the terrific punishment of military service. And that's why they are saving precious rubber for Uncle Sam by giving more mileage on essential truck and bus operations from coast-to-coast.

Be sure to take your next ration certificate to your nearby Seiberling Dealer. However, if he is unable to sell you these cooler-running, longer-wearing truck and bus tires, please understand . . . your armed forces' war needs must be filled *first*. Meanwhile, guard your present tires well—make them give every possible mile of service for your country!



Play Safe! TRUST YOUR TIRES ONLY TO THE CARE OF A RECOGNIZED EXPERT

Your Seiberling Independent Dealer's principal business is tires. And you'll find he knows his business! Whatever make of tires now on your trucks, this expert can help you add thousands of miles to their useful life. See your Seiberling man soon for details of this rubber-saving preventive maintenance program!

SEIBERLING

Join the U.S. TRUCK CONSERVATION CORPS

Heat-Vented



Also manufacturers of Pontons • Reconnaisance Boats • Parts for Gas Masks • Bullet-Seal Tubes and Military Tires for our Armed Forces

SEIBERLING ON RUBBER IS LIKE STERLING ON SILVER

NEW PRODUCTS

(CONTINUED FROM PAGE 61)

The Micro-Linor Toe-In Measuring Gage is designed to fit any vehicle-even airplanes. It is only 12 in. long, small enough to fit into a mechanic's tool kit; a wood case with a slide cover is provided for this purpose.

Use free postcard for more details

P99. Portable Electric Drill

A maroon plastic housing is the feature of the new Thor 1/4-in. portable electric drill just announced by Independent Pneumatic Tool Co., Chicago, Ill. Aside from



the improved appearance, it is claimed that the new housing provides greater strength,

protection from shock and more power per pound of weight.

The manufacturer states that the plastic housing does not support any of the oper. ating parts of the new drill, but serves simply as a protective shell. The bearings, gears, stator, centerplate and other internal power unit parts are supported within a sturdy, inner metal skeleton frame which insures close tolerance in the alignment of these parts.

The new drill is available in three speeds-2500, 3750 and 5000 r.p.m. Weight is 3 lb., 3 oz.; length 8 3/16 in.; heavy duty drilling capacity, 1/4-in.

Use free postcard for more details

P100. Spray Syphon Cover

Here is an item that should be of great interest to fleet operators having spray painting equipment and who find it trouble-

some and wasteful to transfer unused paint back to the original container, then flushing the spray cup to prevent streaky improper colors on the next job.

The Master Manufacturing Co., Chicago, Ill., has developed a syphon cover for friction top cans that can be used with the



original quart size paint cans. This item is known as the "C3 Econ-O-Can Cover" and is designed to fit practically every type of spray gun.

With this accessory, painters in fleet shops are able to keep the various colors used in their original containers, thereby eliminating much waste in the transferring processes. In addition, this device makes it unnecessary to replace existing, damaged paint containers.

Use free postcard for more details

P101. Signal Light

A new type of warning and passing signal light for night driving, called "Wav-A-Way," has been developed by The Buell



Manufacturing Co., Chicago, Ill. This light produces a powerful beam that swings from side to side, commanding considerable attention on the highway.

Only the reflector and light bulb move, the housing remains fixed. Thus, all parts (TURN TO PAGE 180, PLEASE)

Take Good Care of Your

CURTI

and Extend Its Normally Long Life



Because in many cases your compressors may have to last for the duration, it's vitally important to give them proper care now, and to continue to do so. These few tips on service and maintenance will enable you to extend the normally long life of your Curtis Air Compressor.



CHECK INSTALLATION - Compressor should be in clean, dry, level, accessible, and well-ventilated place. Check to see if compressor and motor operate at recommended speed

and in right direction. See that specifications of motor and connections agree with current and voltage available.



LUBRICATION - Maintain proper oil level and use recommended grade of oil. Keep oil off belts and other unlubricated parts. Drain and refill crankcase at least every 3 months.



TESTING - If air supply or pressure decreases, test all outlets, joints, and valves for leaks - using soapy water and brush. Periodically inspect check valves, safety valves, or

valves in head of compressor. If they leak, remove and clean - oil them so as to work freely.



SERVICING - Drain moisture from air tank at least weekly, preferably every day. When replacing head gasket, secure proper grade of material from manufacturer — do not use paper or soft rubber.



ELECTRICAL - Keep motor dry. Don't connect motor to light wiring - run proper size wiring direct from meter. Disconnect automatic units at night unless in use.

Proper fusing prevents burnt-out motors. Don't over-fuse. Don't use jumpers. Thermal cutouts are recommended for any motor, but should always be used with 2 or 3 phase motors to prevent single phasing.



KEEP CLEAN - Wipe your compressor unit off at frequent, regular intervals. Set a time each week for this important service.

Conserve Metals—Buy War Bonds



CURTIS PNEUMATIC MACHINERY DIVISION of Curtis Manufacturing Company

1970 Kienlen Avenue

St. Louis, Missouri





Reproduction of national advertisement appearing in leading city and farm publications. Conserve gasoline, oil, diesel fuel, and tires by keeping your AC Spark Plugs, Oil Filters, Air Cleaners, Fuel Pumps, and other products in peak condition. When replacement becomes necessary, select AC—and be sure of complete satisfaction. AC quality and precision production, accepted by the Army and in service on every front, assure maximum reliability and economy.

NEW PRODUCTS

(CONTINUED FROM PAGE 178)

are sealed from dirt, dust and moisture. The signal is actuated by means of a floor button. The light may be mounted either on the roof or on the bumper.

While the light effectively secures the right of way, day or night, the manufac-turer states that it is not dangerous to use as far as oncoming vehicles are concerned. The beam of light is focused slightly above the bumper but well below eye level to avoid dazzling or blinding approaching drivers.

Use free postcard for more details

P102. Sweeping Compound

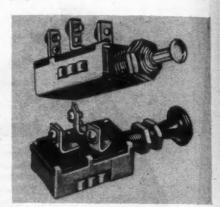
A new floor cleaning compound is being marketed by the Lacey-Webber Co., Kalamazoo, Mich., claimed to be both fireproof and oil absorbent. This product is called Fibre-Tex and is designed for use wherever oil or grease may collect or be spilled upon floors.

In addition to being highly oil absorbent, it is claimed that the product has an active cleaning effect upon floors on which it is consistently applied. The product is said not to burn even when the flame of a blow torch is played directly upon it, nor as a result of spontaneous combustion.

Use free postcard for more details

P103. Heavy Duty Switches

The use of silver in the manufacture of its heavy duty line of switches has just been announced by the Cole-Hersee Company, Boston, Mass., as one of the new features in the recent construction improvement and vital materials conservation program.



The silver inlaid contact rivets and silverfaced heavy bronze current carrying members guarantees switch will not overheat or burn, states the manufacturer. Other features are, independent click action, heavy canvas reinforced bakelite insulating members.

Model 5015, shown above, at top has metal chrome finish knob of improved, well gripping design integral with the switch. Model 5027, below, is equipped with a large plastic screw-on knob available in black, ivory or tan. Both models are 11/4 in. long with 1/2-in. mounting stem.

Use free postcard for more details.



N these days of labor shortage every man-hour that can be saved helps to win the war!

The best way to save man-hours is to eliminate extensive repairs—by constant inspection—and immediate attention at the first sign of trouble.

Reconditioning Fuel Pumps and Carburetors "the Contain-All Kit Way" forcefully illustrates the wisdom of this plan.

Contain-All Kits give you all the vital parts for complete rebuilding. The job's finished in double-quick time. No trade-in delays. No waiting for new, hard-to-get units. Man-Hours saved in every way.

Hook up with Contain-All Kits. Conserve Man-Hours for yourself-and for your Uncle

> HYGRADE PRODUCTS CO., INC. 35-35 Thirty-Afth St., Long Island City, N. Y.

REPLACEMENT PARTS FOR CARBURETORS. **FUEL PUMPS** AND SHOCKS. **SPEEDOMETER**

FUEL LINES AND FITTINGS.

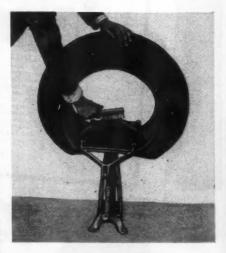
SHAFTING AND CASING.



Remember Our Slogan Don't BUY Labor-S

P104. Tire Spreader

To facilitate tire inspections and inspect or repair casings, E. H. Stackhouse, Philadelphia, Pa., is offering a simple, efficient tire spreader that will handle both passenger and truck tires with minimum effort.



In addition to the spreading operation, this device also turns the casing inside out, as shown in the accompanying illustration. It is hydraulically operated by a foot pedal and handles tires up to 10:50.

Use free postcard for more details (TURN TO PAGE 182, PLEASE)

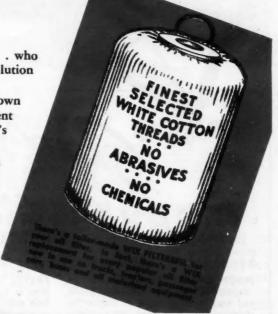


Here's One Problem you can stop worrying about !

You've got your troubles today . . . who hasn't? But here's one bright spot and an economical, practical solution to one of the your biggest operating difficulties.

Yes, you can put an end to Dirty Oil—and quick! It breaks down vital motors . . . wastes mechanics' time and priceless replacement parts . . . keeping your pay load units garaged when Uncle Sam's wartime transportation needs them most.

WIX FILTERFILS are YOUR solution. They'll give you clean, trouble-free lubrication and give it to you for many more hours at rock-bottom cost. Thousands of fleet operators have found this sturdy sludge-hungry filter cartridge the way to get maximum oil life and a quick answer to the command—"KEEP 'EM ROLLING." There is a WIX size and type designed precisely to suit whatever filters your vehicles carry. And these famous Refills are available—NOW! See your jobber today, or send the handy coupon for the whole story.



FIL	TEREFIL
	CORPORATION, GASTONIA, N. C.

ACCESSORIES CORPORATION GASTONIA, N. C.

Gentlemen: We are interested in refills for

Filters (GIVE MANUFACTURER'S NUMBER). Please send us quotations at once.

NAME

ADDRESS STATE

WAREHOUSES: NEW YORK : CHICAGO : KANSAS CITY, MO. : MINNEAPOLIS : LOS ANGELES : SAN FRANCISCO CANADIAN FACTORY : WIX ACCESSORIES CORPORATION, LTD., 161 BAY ST., TORONTO, ONTARIO

NEW PRODUCTS

(CONTINUED FROM PAGE 180)

P103. Drill Grinding Attachment

The job of grinding dull or worn-out twist drills is speeded and simplified by the use of the Rite-Way drill grinding attachment made by the T. & H. Manufacturing Co., Kansas City, Mo.

It is claimed that with this device any person in the shop can do an expert job of drill grinding. The device is mounted



on the work bench beside any bench grinder. When a bit is to be ground, it is inserted into the holder of the attachment, the grinding angle set by a convenient knob, and the grinding proceeds

without any further manipulation by the operator.

The manufacturer states that this device will not overheat or burn drills. It will handle any drill bit between 3/16 and 11/4 in.

Use free postcard for more details

FREE PUBLICATIONS

(CONTINUED FROM PAGE 60)

L93. Wartime Buyers' Bulletin

To expedite the wartime buying of hydraulic shop equipment one of the leading manufacturers has just released a special 12-page bulletin condensing eight standard equipment bulletins and listing only those items scheduled for current production. By omitting products discontinued for the duration, the bulletin aims to eliminate delays caused by correspondence and contacts to arrange for suitable substitu-

This wartime buyers' reference lists hydraulic hand jacks, 3 to 50-ton capacities, wheeled service jacks, gage-equipped jacks, portable hydraulic units, maintenance kits, motor vehicle assortments and pipe benders. Write L93 on the postcard for your free copy.

L94. Brush Conservation Booklet

Due to the scarcity of imported hog bristle, which gave the pre-war paint brushes their fine wearing quality, a new booklet has been published on the care and conservation of paint, varnish and lacquer brushes made of war-created substitutes.

In addition to a careful explanation as to the proper manner of breaking-in a new brush, the text gives many examples of how to use a brush properly and how not to abuse it. Numerous illustrations accompany the examples, and proper and improper cleaning agents also are mentioned so that the user can get the most out of his brush investment. Write L94 on the postcard for your free copy.

L95. Lube & Gun Conservation

How to add years of service to high pressure lubricating equipment is briefly explained in a small illustrated folder. The entire contents can be absorbed in a few minutes but the suggestions, if followed, should have lasting beneficial effects.

The data are divided into nine parts, as follows: 1, Check Air Pressure; 2, Swivels-Pipe Joints; 3, Check for Leaks; 4, Drain Compressor Tank; 5, Keeping Grease Clean; 6, Care of the Finish; 7, Cleaning Casters; 8, Keeping Hose Clean; 9, Oiling Equipment. Write L95 on the postcard for your free copy.

END

(Please resume your reading on P.61)



by shutting off automatically when tank is filled

FLEET OPERATORS can Now get "Safety-Fill" Nozzles. Prevent spilling and wasting of gasoline . . . speed up servicing by equipping your pumps with "Safety-Fill" Nozzles.

SHUTS OFF AUTOMATICALLY when gas in the tank reaches the tip of the nozzle. This eliminates overflowing and wasting gasoline.

REDUCES FIRE HAZARD -Gasoline spilled on or around a truck endangers equipment which can't be replaced. "Safety-Fills" avoid this danger.

Fill in - Tear out - Mail Teday! OPACO DIVISION, AMERICAN MACHINE and METALS, Inc. East Moline, Illinois

Please send me FREE Bulletin and prices on OPACO Safety-Fill NOZZLES Address . State.

FASTER SERVICE — Gas tank can be filled at maximum speed. This is a big time saver during rush periods.

NO PEEK! NO LISTEN! NO GUESS! Ideal for servicing at night and in noisy garages and terminals.

"Safety-Fill" Nozzles will soon pay for themselves. Fleet operators such as Borden Company, Yellow Cab, Checker Cab, A & P and N. J. Bell Telephone use "Safety-Fills." Write for FREE Bulletin and latest prices! Use convenient coupon at left.

AMERICAN MACHINE AND METALS, INC. EAST MOLINE, ILLINOIS

City.

Mechanite Foundries

Allentown, Po.
Traylor Engineering Company

Ansonia, Conn.
Farrel-Birmingham Co., Inc.

ill

Bridgewater, Mass.
The Henry Perkins Co.

Brooklyn, New York E. W. Bliss Company

Buffalo, N. Y.
Pohlman Foundry Co., Inc.

Charleston, W. Va. Kanawha Manufacturing Co.

Chattanooga, Tenn. Ross-Meehan Foundries

Chicago, III.
Greenlee Foundry Company

Cincinnati, Ohio Cincinnati Grinders Incorporated The Cincinnati Milling Machine Co.

Fulton Foundry & Machine Co.

Denver, Colo.
The Stearns-Roger Mfg. Co.

Detroit, Mich. Atlas Foundry Co.

Flint, Mich.
General Foundry & Mfg. Company

Hamilton, Ohio
The Hamilton Foundry & Machine Co.

Hamilton, Ontario, Canada Otis-Fensom Elevator Company

Irvington, N. J. Barnett Foundry & Machine Co.

> Jeannette, Pa. Elliott Company

Lewisburg, Tenn.
Marshall Stove Company

Los Angeles, Calif. Kinney Iron Works

Milwaukee, Wis. Koehring Company

Mt. Vernen, O., Grove City, Pa. Cooper-Bessemer Corporation

New Rochelle, N. Y.

Meehanite Metal Corporation

New York, N. Y.
The American Brake Shoe
& Foundry Co.

Oakland, Calif.

Vulcan Foundry Company

Orillia, Canada E. Long, Ltd.

Philadelphia, Pa,
H. W. Butterworth & Sons Co.
Florence Pipe Foundry & Machine Co.,
(R. D. Wood Company, Selling Agents)

Phillipsburg, N. J. Warren Foundry & Pipe Corp.

Pittsburgh, Pa.
Rosedale Foundry & Machine Co.

Rochester, N. Y.

American Laundry Machinery Co.

St. Louis, Mo. Banner Iron Works

St. Paul, Minn. Valley Iron Works

The International Mechanite
Metal Co., Ltd.

Mustralian Meshanite Metal Co., Lt.l.

Johannesburg, South Africa Mechanite Metal Co. (S.A.) (Pty.) Ltd.

POWER TO STOP THIS SCOUT CAR



MEEHANITE

BRAKE DRUMS

In this Army unit, MEEHANITE METAL fulfills the strict requirements of an exacting job.

The smooth, safe operation of any vehicle depends on good brake drums. Operators find that MEEHANITE drums provide greater heat resistance, tough wearing qualities and longer lining life.

MEEHANITE offers a combination of characteristics that makes it unique among cast metals, and furnishes the very qualities demanded for brake drum service. This special metallurgically controlled metal is highly resistant to abrasion yet, due to its structure, provides a smooth braking action which means longer lining and drum life. Its rigidity resists distortion and its graphitic structure provides just enough lubrication to permit smooth braking action, reducing the tendency to scoring.



MEEHANITE RESEARCH INSTITUTE · New Rochelle, N. Y.

Meehanite Bulletin

No. 13, "Brake

ODT MAINTENANCE COMMITTEES APPROVED IN 48 DISTRICTS

Expansion of ODT's District Maintenance Advisory Committees to include representatives from four additional branches of the automotive industry was announced today by the Office of Defense Transpor-

At the same time, the ODT announced that permanent committees already have been approved in 48 districts.

The addition to each local committee of a bus maintenance expert, an oil lubricating specialist, a tire maintenance expert, and a trailer manufacturer or distributor

representative will provide for the development of a more comprehensive program of maintenance of passenger-carrying as well as property-carrying motor vehicles. This brings the membership of the committees to eleven, representing the following automotive maintenance activities: common, contract and private carriers, heavy duty trucks, light truck and automobile dealers, garages, parts jobbers, bus lines, tire distributors, oil companies, and trailer distributors.

The ODT emphasized that the perma-

nent maintenance advisory committees represent industry and not the ODT. Their chief duty is to cooperate with the ODT in a joint effort to solve or eliminate tronblesome maintenance problems now confronting the motor transport industry.

Each ODT District Office has designated one staff member as "maintenance specialist," whose duties include the following:

1. To help establish and to work with the District Maintenance Advisory Committee.

2. To cooperate with WPB's Automotive Branch field force in locating used parts and organizing used parts yards, as well as to help obtain essential new parts for trucks and buses that are laid up due to a lack of parts.

3. To cooperate with the Army Zone and Navy District Transportation Officers and to assist common, contract, and private carriers in obtaining parts and service facilities to enable the carriers to efficiently serve Army and Navy installations.

4. To cooperate with local OPA officials in making available tires for trucks, buses and other essential vehicles.

5. To locate garage and maintenance facilities with proper equipment and sufficient manpower to maintain essential transportation equipment.

6. To discourage the scrapping of needed used parts that can be reclaimed or rebuilt.

7. To assemble data, with the assistance of the Maintenance Committee, regarding the availability or lack of new and used replacement parts, repair materials, tires, maintenance facilities and mechanics, and to report on the progress of the maintenance program generally.

8. To assist vehicle operators as far as possible in helping to solve their individual maintenance problems.

The basic functions of the District Maintenance Advisory Committees are:

1. To assist in securing information on local problems relating to maintenance facilities, replacement parts, available maintenance materials, maintenance personnel shortages, and the effect of government limitation orders on maintenance.

2. To disseminate information to the industry on all government regulations which affect vehicle and tire maintenance.

3. To assist automotive, tire, parts and oil companies cooperating in the U.S. Truck Conservation Corps in promoting greater interest in preventive maintenance among vehicle owners, drivers and mechanics.

4. To assist in passing on to maintenance men and establishments the infor-mation prepared by the SAE-ODT Maintenance Methods Coordinating Committee and its various subcommittees working with the Vehicle Maintenance Section of ODT.

5. To assist and advise dealers, garage owners, jobbers and other maintenance organizations, schools and other interested groups in developing training programs for mechanics and drivers.

6. To assist in gathering information regarding the possibilities of and the procedures to be followed in pooling mainteance facilities, tools and manpower, if and when such action may become necessary or desirable.

Bases for BOMBERS * Made by HERCULES. * Delivered by HERCULES



Besides HERCULES Speedraulic Hoists and Dump Bodies for civilian use and the huge Cargo Bodies produced for the U.S. Army, thousands of Airplane Landing Mats for emergency "Bomber Bases" have been turned out by the big Hercules plant the past year. HERCULES Dump Cargo Bodies, like the one shown above, mounted on a Chevrolet chassis, are used for transporting such materi-

als on many fronts.

Heavy production for war will continue in all lines until victory is won, but if your need is essential, your Hercules distributor can take care of you.

MEMBER THESE "HERCULES" FEATURES!

- Exclusive Center-Lift Hoist Action
- Double Bridge-type Lift Arms
 Balanced Piston Valve,
 with finger-tip control
 6", 7", 8" and 10" Hoists

HERCULES STEEL PRODUCTS CO. GALION, OHIO



WHIZ MOTOR RYTHM

stops bucking, saves engine overhauls

America's outstanding cab, bus and truck fleets use WHIZ MOTOR RYTHM regularly—

- To stop bucking due to carbon, sludge and varnish.
- 2. To cut engine maintenance and overhaul costs.
- 3. To save labor.
- 4. To save gas and oil.
- 5. To make equipment last longer.

Here's how WHIZ MOTOR RYTHM works. Carbon, sludge and varnish are always forming around your valves, piston heads, piston ring grooves, spark plugs, and in the crankcases of your engines. MOTOR RYTHM cleans it out chemically—automatically—and thus keeps engines in better running condition, and reduces wasteful down time and costly overhauls.

By keeping engines clean and improving performance, MOTOR RYTHM can save up to 33% of gas, 26% of motor oil consumption—based on official car tests.

Get the maximum from your equipment and manpower, by using WHIZ MOTOR RYTHM in your engines regularly! R. M. Hollingshead Corp., Camden, N. J.; Toronto, Canada.

Economize on larger sizes -1 gal., 5 gal., and drums

Hollingshead
LEADER IN MAINTENANCE CHEMICALS



Write for information on other WHIZ fleet reconditioning and maintenance products:

HO-ZOF DEGREASING COMPOUND, BRAKE FLUID, RUST PREVENTIVES, COOLING SYSTEM CLEANERS, SHOCK ABSORBER FLUID



WPB NEWS

113,543 Vehicles Released

Since the rationing program became effective March 9, 1942, a total of 113,543

vehicles of all types has been released to the week ended Mar. 13. This total includes 24,100 light, 61,004 medium, and 14,389 heavy trucks, 8,700 trailers and 5,350 miscellaneous vehicles.

57,573 Vehicles Left in Rationing Pool, Says Vaniman

The low stage of the Nation's reserve pool of new commercial motor vehicles is reflected by the figures published Mar. 10 by R. L. Vaniman, director of WPB's Automotive Division.

"One year after establishment of the pool," said Mr. Vaniman, "we have exactly 57,573 commercial vehicles left in our reserve. The figure includes light, medium and heavy trucks, trailers and third axle attachments. To appreciate the depleted state of the reserve, the figure may be compared with production in a pre-war year (1939) of 710,496 trucks.

"This critical situation should bring forcefully to us the necessity of conserving our reserve pool and drawing upon it only in cases of the most pressing need. For this reason the vehicles now remaining in the pool are being held for rationing for indirect military demands and only the most essential civilian requirements."

The vehicles remaining are in the hands of approximately 14,000 manufacturers, their branches, and distributors and dealers in the continental United States, Alaska, Puerto Rico, Virgin Islands and the territory of Hawaii.

(Ed. note: See Washington Runaround for comment on this statement)

WPB Standardizes Sizes of Pistons, Pins, Rings & Bearings

New methods of controlling production of automotive replacement parts to fit it in with the Controlled Materials Plan have been established by the Director General for Operations with the issuance of Limitation Order L-158 as amended.

The amended order provides that no producer shall manufacture and purchase at a rate which will increase the dollar cost value of his finished replacement parts inventory at the end of any quarter of 1943 beyond that which he had on April 1, 1943. Further, the producer is allowed a 60-day period following the end of each quarter within which he may increase or decrease production to bring his inventory to the level of April 1, 1943. This provision removes the percentage restriction on production thereby increasing the amount of replacement parts that may be manufactured.

Relief of critical shortages in replacement parts is provided for by permitting the Director General to order producers to schedule and deliver production in such manner as will relieve shortages.

Certain minor changes are made in the definitions of various replacement parts mentioned in the amended order which now includes replacement parts for motorized fire equipment. The order also provides for the standardization of over-sizes of piston pins, piston rings and engine bearings.

Provisions requiring the turn-in of used replacement parts upon the purchase of

(TURN TO PAGE 188, PLEASE)



GATKE BRAKE BLOCKS



INTRODUCED Genuine Moulded Brake Lining for automotive use.

ORIGINATED Wire-Back Moulded Brake Block

DEVELOPED the first patentable automotive brake lining.

PIONEERED CUSTOM-BILT Brake Lining Sets.

LED the development of Brake Blocks for Trucks, Trailers and Buses.

CHAMPIONED the correct balance between liners of primary and secondary shoes as essential to maximum brake efficiency.

INVENTED Grooved DURA BLOK Brake Lining.

PERFECTED the Simplified Brake Survey System for Fleet Operators.

Custom-Bilt for your JOB

Fleets everywhere—using all kinds of equipment—find the EXTRA performance of GATKE CUSTOM-BILT BRAKE BLOCKS especially helpful in meeting today's extraordinary service demands.

The smooth, non-grabbing action and proper balance between shoes gives even, positive stopping that adds miles to tire life with increased Safety.

Long wear life and ease of application avoids adjustments and saves precious maintenance man hours.

The GATKE Brake Survey System saves time for you and helps you get the fullest benefit from GATKE specialized developments and extensive application experience.

Ask your GATKE Jobber or write for details.

GATKE CORPORATION

228 N. La Salle St.

Chicago, III.

TOUGH NUTS TO CRACK LOCKED in SEALED at top to protect place on bol rking threads by grip of tough locking collar HOLDS nut FITS any stand ard bolt. Made thread against bolt thread in all sizes

• We've made billions of Elastic Stop

And to our knowledge not one has failed to do its job.

But the tough nuts we refer to now are the fastening problems which looked hopeless until Elastic Stop Nuts were used.

We've met lots of these in our day - and licked them.

There have been plenty of them in war production.

And how well these fastenings have filled the bill can best be told this way:

Every nut we can possibly produce is going into war goods. Yet even doubling our round-the-clock plant capacity hasn't let us gain on the demand.

In the days to come there will be many peacetime needs for these nuts.

Some will be simple. Others will look like "tough nuts to crack."

Our engineers like to meet both kinds. They stand ready to share their experience with you, work on your fastening problem and recommend the proper Elastic Stop Nut application for the job.

ELASTIC STOP NUTS

Lock fast to make things last



ELASTIC STOP NUT CORPORATION OF AMERICA UNION, NEW JERSEY

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WPB NEWS

(CONTINUED FROM PAGE 186)

new ones are retained in the amended order, but it modifies the consumers certificate to permit the purchase of oil filters for all types of vehicles; springs, brakes, fifth wheels, and other parts specifically named for trucks, without a turn-in where such additional parts will improve the vehicle's efficiency.

The provisions governing production and purchases of replacement parts become effective under the present order, as amended, on April 1, 1943. Until that date such production and purchases are governed by Limitation Order L-158 as amended January 25, 1943.

Standardization of production provides that on and after April 1, 1943, production of the replacement parts named below shall be made only according to the following standards:

(1) Pistons as components of engines shall be produced only in standard sizes and the following oversizes: .005, .202, .030, .040, .060, and semi-finished.

(2) Piston pins as components of engines shall be produced only in standard sizes and the following oversizes: .003,

(3) Piston rings as components of engines shall be produced only in standard sizes and the following oversizes: .020, .030, .040, .060 and in addition for medium and heavy duty trucks and buses: .080. .100.

(4) Engine bearings as components of engines shall be produced only in standard sizes and the following oversizes: .002, .010, .020, .030, semi-finished; in addition, the above sizes may be produced in the following oversizes on outside di-ameter in those types of connecting rod bearings that oscillate in the connecting rod: Standard, .005, .010, oversize. In addition the "special length Ford main bearings" may be produced.

Cross-Hauling Curtailment by **Industry May Conserve Trucks**

The importance of transportation within an industry's operations, and the need of keeping a plant's transportation equipment in the highest state of efficiency were discussed at a recent meeting of the Automotive Industry Transportation Advisory Committee with War Production Board officials in Washington.

War Production Board officials told the Committee that industry in general was being urged to conserve its truck transportation facilities, and they asked the Committee's assistance in getting industry to cut down as much as possible on the number and distances of its interior opera-

tional moves.

The Committee discussed at length the problem of conserving transportation equipment. It agreed that the allocation of materials under the Controlled Materials Plan and the development of WPB's Concentration Program should help appreciably in eliminating the waste of cross-hauling and thus substantially reduce the number of trucks in use. The Committee also advocated that efforts be made to have consumers get necessary materials from producers located nearest to their plants.

Time Limit Lifted from Off-Highway Vehicle Production

The time limitation applying to production of certain off-the-highway motor vehicles was abolished by amendment of General Limitation Order L-1-e.

The first amendment to L-1-e, dated July 24, 1942, provided for the manufacture of 500 off-the-highway motor vehicles between July 1, and December 31, 1942. A later amendment, dated November 17, 1942, extended the period of time to March 31, 1943. The present order as amended removes the time element but still restricts manufacture to the original 500 vehicles.

An "off-the-highway" vehicle is defined as a "motor truck, truck-trailer, or trailer operating off the public highway, normally on rubber tires and especially designed to transport material, property or equipment on mining, construction, logging or petroleum development projects.'

Restrictions on Use of Copper in Automotive Parts Extended

Restrictions on the use of copper and copper base alloy products in the manufac-(TURN TO PAGE 190, PLEASE)



MACHINE DIVISION

The Invisible Crew

from coast to coast are speeding to world

battle fronts.

-precision equipment which 25 Bendix plants



This Cartridge shows that the operator is doing everything to conserve gas, oil, parts, time

All's well with your engines when your DeLuxe Cartridges are retired, looking like this! Note that there is no sludge, no indication of oil dilution and carbon nor other indications of inefficiency or neglect.

DeLuxe Cartridges, to our knowledge, are the only cartridges which, when analyzed, reveal exactly what is going on in the engine. This is made possible by DeLuxe's unique cartridge and filter construction which actually cleanses the oil of asphaltenes, before they can form into destructive sludge. Here is one reason for the exceptional long life of a DeLuxe Cartridge.

Why not have DeLuxe analyze your cartridges? Requests for such analyzation service are welcomed and will be handled by DeLuxe field engineers as quickly as the volume of requests permits.

DELUXE PRODUCTS CORP.
1406 Lake Street · LaPorte, Indiana



Throw YOUR Scrap into the Fight!

Engine Temp.

Cartridge Chang

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WPB NEWS

(CONTINUED FROM PAGE 188)

ture of automotive parts are extended by Limitation Order L-106 as amended by the Director General for Operations.

Under the terms of the order these critical materials may not be used in the manufacture of any automotive parts (including replacement parts) except 15 specified items, and then only to the extent indicated. Thirteen of these were also exempted in the original order, issued in May, 1942. Despite the inclusion of two additional exempted items and of certain components of others, the amended order

will result in considerable saving of copper and copper base alloy.

The added exemptions cover parts and components in which no practicable substitutes for copper and copper base alloy products can be used. The restricted materials may be used only to the extent necessary for the proper functioning of the parts. Authorization for the use of these products has hitherto been granted on appeal.

Exempted items are: (1) radiators; (2) cooling system control devices; (3) electrical equipment; (4) tubing, tube fittings and actuating parts; (5) bearings, bushings, thrust washers; (6) carburetor and fuel pump parts; (7) plating; (8)

gaskets; (9) transmissions; (10) brazing materials; (11) powdered copper; (12) used as a minor alloying element in alloys other than copper base alloys; (13) clutch facings and brake linings; (14) speedometers, tachometers, heat indicators and oil gauges; (15) miscellaneous.

Items (13) and (14) are added by the order as amended; the others appeared in the original order.

The provisions and restrictions of the order do not apply to automotive parts produced for the Army or Navy where specifications of the prime contract call for the use of copper or copper base alloy products.

L-106, became effective on March 10, 1943.

Reo Scrap Drive Nets 15½ Million Lb. to Date

More than 15½ million lb. of scrap metal and other materials have been collected for the government by the Reo factory at Lansing, Mich., exclusive of the amount accumulated by Reo branches, distributors and dealers throughout the United States.

January showed a total of 1,103,560 lb. of scrap iron and steel, 165,015 lb. of aluminum, brass, copper, and zinc, 35,260 lb. of paper, aggregating a total of 1,303,835 lb.

Since May, 1942, a special committee of Reo executives has been active in promoting scrap collection. This is a continuous operation month after month.

Tank-Automotive Center Appointments

Brig. Gen. John K. Christmas, Assistant Chief of the Ordnance Department's Tank-Automotive Center announced the appointment of Col. W. E. Niles as Executive Officer of the Center.

Gen. Christmas simultaneously announced the creation of four product divisions within the Office of the Assistant Chief and named four directors empowered to act with his full authority.

The four product directors are: Henry H. Howard, Tanks and Combat Vehicles; Col. E. S. Van Deusen, Transport Vehicles; Col. Graeme K. Howard, Parts and Supplies; C. B. Smith, Tools and Equipment.



Participating in the ceremony at which Wittek Manufacturing Co., Chicago, Ill., was awarded the Army-Navy "E" for production efficiency are, left to right, Clarence Tetzlaff, vice-president and general manager; Ben A. Tetzlaff, president and founder; Lt. Col. E. H. Bowman; employee representative Joe Kratochvil; Lt. (j. g.) F. C. Cuilinan; Major J. R. Johnston and Norman Ross, Radio commentator.

Anything is beyond price if it cannot be replaced or duplicated — and that goes for a jewel, a painting . . or a truck. Right now it's trucks that concern us

Right now it's trucks that concern us most—every one a vital asset to you as an operator, and to all as a nation. What could we do without them? That's why the burden has been placed on your shoulders... "keep them up"... "make them last"... "take all steps necessary to save them."

Most operators started their conservation program by installing reliable, proven governors. No, governors cannot make new trucks out of old ones, but they will do more to prolong the life of your equipment and tires than anything else you can do... and save, in dollars and cents, a lot more than what they cost.

HOOF PRODUCTS COMPANY
CHICAGO, ILLINOIS

Save Your Vehicles for Your Country

HOOF FULL POWER GOVERNORS

IT'S NEW!-IT'S DIFFERENT!-IT'S CONVINCING! 50.000 Guarant 50.000 tor 50.000 Guaranteed tor 50.000 50,000 Çuaranteed 000.09 WILL HELP YOU SELL Orecision Made. AIRTEX 3-WAY SERVICE 1. Diaphragm Kits for minor repairs. You can now tell an AIRTEX Fuel Pump 2. Repair Kits for emerinstantly by the small triangular samgency repairs. Complete Exchange ple swatch of AIRTEX Diaphragm Material that's attached to every new or Service that gives exchange AIRTEX pump. This new AIRyou factory rebuilt pumps with the AIR-TEX 50,000 Mile TEX triangle reminds the buyer unmistakably of the AIRTEX Diaphragm that's guaranteed for 50,000 miles . . . Guaranteed Diahis assurance of superior fuel pump performance and lasting service. phragm, at a low exchange price. Write to your jobber for the AIRTEX dealer proposition. Remember - your Complete stock of new AIRTEX Fuel Pumps still available for all cars and trucks. profits climb with the AIRTEX line.

AIRTEX AUTOMOTIVE CORP.

FAIRFIELD, ILL.



Pleasure Driving Ban Lifted in East

The ban on pleasure driving in the Eastern Seaboard States was lifted effective

Mar. 22 by OPA. The value of "A" rationing coupons was cut from 3 gal. to 11/2 gal. by extending the valid period. The

value of B, C and other supplemental ration coupons was not affected. The pleasure driving ban went into effect Jan. 7.

Fleet Gasoline Rationing Procedure Simplified

Procedure for handling applications for gasoline rations for fleet and official vehicles is simplified in an amendment to the gasoline rationing regulations announced by the OPA.

Instead of filing official OPA tire inspection records for every vehicle, applicants seeking renewals of fleet or official rations, upon proper showing of hardship in submitting tire inspection records, may submit a statement certifying that all necessary tire inspections have been made.

This action was taken because it is frequently difficult for owners of large fleets and operators of official cars and motorcycles to gather the tire inspection records for vehicles, which may be in widely scattered locations, in order to have the records for presentation to a War Price and Rationing Board.

A simple statement that tires on each vehicle have been inpected and approved in accordance with tire rationing regulations will make it easier for operators of fleet and government vehicles to get their rations renewed. It will also expedite handling the applications for the rationing boards.

The changes are made in Amendment 32 to Ration Order 5C, effective March 29.

360,000 Truck Tires in April **Quota: Tire Rules Eased**

In lines with the Government's announced plans to keep the nation's automobiles rolling, the OPA announced that additional pre-Pearl Harbor and "Victory" tires will be available April 1 to certain lower mileage ration passenger car owners.

6

The release of these new casings under rationing to "B" and "C" card holders will be for replacement of tires worn beyond the recappable stage.

An order issued by OPA makes it possible for a driver with a mileage ration of more than 240 miles monthly to get new casings of the lower qualities-Grade IIwhen he needs replacements. Previously only those with monthly mileage over 560 could get new tires.

At the same time, OPA announced that motorists with mileage rations between 560 and 1,000 monthly-who until now have been eligible for new casings in the lower quality bracket only-will be able hereafter to get the Grade I tires which previously were reserved for cars with a ration of 1,000 miles or more a month. There will be a substantial increase in truck tire quotas, from 299,000 for March to about 360,000 for April.

The amendment changing new tire eligibility also adds all passenger car tires that fit a 17-inch rim to the list of "obsoletes." This classification previously included only casings with a rim size of 18 inches or more. Obsoletes, regardless of grade, are available for needed replace-

(TURN TO PAGE 194, PLEASE)



PROMPT delivery on outstanding welding equipment and electrodes is a "blessed event" for fleet operators faced with today's job of maintaining trucks for vital war transportation in spite of increasing curtailments on replacement parts.

But speed of delivery is only a foretaste of what a MARQUETTE does in the service shop. With simple, easy operation these snop. With simple, easy operation these versatile machines deliver perfect current for fast, flawless repair of cracked cylinder heads, engine blocks, chassis members, bodies and a host of other automotive parts. Making REPAIRS WITHOUT REPLACEMENT is a job for ELECTRIC WELDING! Save critical war materials . . . cut repair bills . . . avoid excessive lay-up time waiting for hard-to-get spare parts.

High priorities are granted fleet operators on welding equipment and supplies to help them in the job of "keeping 'em rolling" with prompt delivery of products essential to the war effort.

Ask for Type #151 All-Purpose Electrodes

Send for free, 24 page, illustrated booklet

MARQUETTE MFG. CO., MINNEAPOLIS, MINNESOTA





Wheel Aliners and Dy-namic Balancers - Frame and Axle Straighteners - Alinement Testers - Shimmy Detectors - Wheel Straighteners - Etc.

OPA NEWS

(CONTINUED FROM PAGE 192)

ments on passenger cars with a mileage ration in excess of that provided by the basic "A" book. Moreover, a car owner who is occupationally qualified for a "C" book is eligible for an obsolete tire even though he may actually have only the basic "A" ration.

OPA Eligibility Rules for Procuring Tires and Recaps

The OPA has released a recapitulation

of eligibility rules governing the procurement of tires and recaps.

1. PASSENGER CARS.

There is no restriction on the recapping of passenger car tires with "passenger type camel-back." "Camel-back" is any rubber compound designed for application to a worn tire to make a new tread. "Passenger type" camel-back is made of reclaimed rubber only, using no crude.

All passenger cars are also eligible for some type of replacement tire, if their present tires aren't recappable. The grade of tire for which a car is eligible depends upon the gas mileage allowed the particu-

lar vehicle.

Thus, cars with mileage allowances up

to 560 miles a month (A and B cards) are entitled to Grade III tires, which are used or recapped tires. (This is in addition to the permission to recap the car's own tires.)

Cars with mileage allowances of from 560 to 1000 miles a month (C card), are entitled to Grade II tires such as a new reclaimed-rubber tire or a pre-war tire priced at 85 per cent or less of the price of new-car equipment grade.

Cars with mileage allowances of more than 1000 miles a month (C card with longer mileage) can have choice of any kind of passenger tire.

2. TRUCKS AND TRAILERS.

Trucks and trailers included in the List A eligibility classification in OPA's regulations (those vehicles providing services deemed most essential by OPA) are eligible for new crude rubber tires if their present casings can't be recapped.

Trucks and trailers performing important services not on List A may apply for certificate entitling them to recapping with "truck type camel-back," which includes a certain amount of crude rubber. Truck tires cannot be made or recapped with reclaimed rubber only.

3. Taxis operating under ODT rules are eligible for truck-type recapping or for new tires if their casings are not recappable.

4. Busses.

Public busses operating regular routes and services are eligible for recapped or new tires.

Private busses performing certain necessary transportation services, including carrying persons to certain essesntial establishments or schools, also are eligible for recapping or for new tires.

Tire inspections are required for virtually all commercial and private vehicles, but frequently depends on type of vehicle and mileage ration.

Facilities for recapping are good throughout the country. Moulds and rubber are available.

Federal Agencies Asked to Cut Vehicle Use by 40 Per Cent

President Roosevelt has called upon each federal department and agency to appoint a mileage administrator to organize and

(Turn to Page 196, Please)



An example of how city vehicles may be utilized to promote America's war effort while making their appointed rounds is found in the fleet of the Cleveland Plain Dealer. This newspaper painted its White Horse delivery units in red, white and blue, and lettered a glant victory "V" on the front. On the upper side panels it lettered this simple message: "Buy War Bonds and Stamps."



WHILE the service conditions on a tank are not quite comparable with those encountered by a commercial vehicle, there is one thought that both must have in common. In order to accomplish anything, both have to stay on the job.

Imperial fittings are going into a wide range of war service where the tubing lines must stay tight. The same reasons for their selection for these fuel, oil, lubrication, air, vacuum and other lines are the same reasons why these fittings are being widely used in commercial vehicles of all types.

The use of Imperial fittings made of brass are for the present limited to the most essential war services. However, Imperial Plastic fittings are available to fill in the gap created by the limitation on the use of brass. These plastic fittings make it possible to handle almost any fleet maintenance problem that cannot qualify for brass fittings.

Whether made of brass or plastic you can be sure that Imperial offers the maximum in fittings that will keep your fleet on the road.

THE IMPERIAL BRASS MFG. CO., 1209 W. Harrison St., Chicago, Ill.

IMPERIAL Automotive Producto



LIPE

-ROLLWAY CORPORATION

Syracuse, N. Y.

OPA NEWS

(CONTINUED FROM PAGE 194)

control the use of that agency's motor vehicles in order to reduce the mileage of all government cars by at least 40 per cent.

Prentiss M. Brown, Administrator of the OPA has been asked to supervise the conservation plan and coordinate the work of federal mileage administrators.

Pooling of vehicles driven on official business, advance clearing of requests for travel in order to assure maximum ridesharing, and all possible use of public carriers were among the conservation steps recommended by the President such measures, it was pointed out, have proved effective in States already cooperating in the nation-wide effort to save tires, gasoline, and equipment in vehicles used by state and local governments. Government mileage administrators have already been appointed in 40 states and the District of Columbia.

"It is my hope that all departments will be able to reduce total mileage by at least forty per cent of that driven in 1941 without sacrificing essential services," the President said in his memorandum to the heads of all departments and agencies. Each civilian department and agency will be called upon periodically to report progress which has been made.

Contract Carriers in N. Y. Area Allowed 5 Per Cent Rate Boost

Permission was granted by the OPA to certain contract motor carriers in the New York metropolitan area to increase their maximum rates 5 per cent above the levels charged in March, 1942.

The increase was allowed, OPA said by reason of a recent wage increase awarded truck drivers and helpers, and increased costs of maintenance and operation.

In order to assure the uninterrupted flow of the trucking business OPA undertook a detailed study of price and cost throughout the industry shortly after the wage award was made. The study was conducted in close co-operation with members of the industry. The increase will not be reflected in higher commodity prices.

Rationed Car Mileage Nears 5,000-Mile Mark, Says Brown

Mileage rationing has reduced the national average of American passenger cars to 5,400 miles annually without eliminating essential transportation, Prentiss M. Brown, Administrator of the OPA announced on the basis of a study of rationing board records of 80 representative counties. The figure reflects a mileage reduction achieved previous to the non-essential driving ban applied to the East coast on Jan. 7.

"We are steadily approaching the 5,000-mile-a-year limit set by the Baruch Committee," said Mr. Brown. "There is no doubt about the effectiveness of the mileage rationing plan in reducing mileage to save rubber. Furthermore, this reduction in mileage has been secured without curtailing essential transportation."

Mr. Brown said the study of rationing board records in the 80 representative counties indicated that gasoline rations have been issued to 25,000,000 private passenger cars, excluding fleet and official cars. Of these automobiles, 15,000,000 or 60 per cent, are operating on "A" books alone. Approximately 26 per cent have "B" coupon books in addition to the basic ration, and 14 per cent have been issued "C" books in addition to the "A" books.

Silent Hoist Has Double Celebration

Silent Hoist Winch & Crane Co., Brooklyn, N. Y., manufacturer of the Krane Kar and hoisting machinery, is celebrating a double event—on the occasion of its 25th Anniversary the company has been awarded the coveted Army-Navy "E," for "outstanding production of war materials." Official recognition is merited since this company has been wholly engaged in the production of essential war goods since before Pearl Harbor.

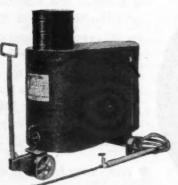
White Motor Gets "E" Star

Under Secretary of War Robert P. Patterson announced that the White Motor Co., Cleveland, Ohio, was awarded a star to be added to the Army-Navy "E" flag which was awarded to this truck manufacturer last August. The star was awarded as "the symbol of appreciation from our armed forces for your continued and determined effort and patriotism."



When you cooperate with the U.S. Truck Conservation Corps your pledge will be more fully effective if you make Hypressure Jenny Steam Cleaning the keystone of your truck conditioning program.

Fleet operators the country over are shortening lay-up time as much as 50% by steam cleaning before repair, keeping chassis free of dirt that may add as much as 400 lbs. of deadweight, saving 25 to 40% in maintenance costs, getting 10 or 12 times more work per man. Best of all they're putting trucks on the road in the top-notch condition that true conservation requires. Add to these the advantages of marked savings in maintenance cleaning... parts, tools, floors, runways, windows, etc., and you have good reason to consider Hypressure Jenny now. Write!



One fleet operator "conditions" 96 trucks with
1 HYPRESSURE JENNY like this.
Another saves \$3,400 annually!

HYPRESSURE JENNY DIVISION OF

HOMESTEAD VALVE MFG. CO.

P. O. BOX 90 . . . CORAOPOLIS : . . PENNSYLVANIA



GIVE'EMI BOYS



KINGBEE IS SERVING ON ALL FRONTS
including the HOME FRONT



AMERICAN AUTOMATIC DEVICES CO.

Manufacturers of the Famous KING BEE Products

HARRISON, THROOP AND CONGRESS STREETS

CHICAGO, ILL.





Left—Air tower arrangement cuts time for truck company to "air up" from 2 hr. to 40 min. Right—Tire inspection under way

"CLEVELAND" DOOR LOCKS and DOOR CHECKS

Endurance . . . that's what you want in Door Locks and Door Checks . . . that's what you get in "Cleveland" locks and checks. Large truck builders and fleet owners recognize this fact. If you are unfamiliar with "Cleveland" Body Irons (made since 1881) write for Catalogs mentioned below.



No. 2385 The Wedge Dorlok

Provided for medium sized bodies. Easy action, rattle-proof. Keeps doors tight always. For Right and Left Hand Doors—2 and 3-way.

 Today "Cleveland" Drop Forgings cover every item used in the Defense Program.



No. 2392-A Zinc Heavy Plated Pattern

 Made with heavy, round adjustable rods. A durable spring prevents road shock from jarring lock open.

Lock

 "Cleveland" Die Castings from Zinc or Aluminum are made to Special Blue Print.

Send for catalog 22 B 1 covering the "Cleveland" stock line of Truck Body Forgings . or catalog 18A covering "Cleveland" Automobile Forgings.

OVERHEAD DOOR CHECKS



No. 2395-B

Slide Rod Is Bolted to Door and Swing Rod to Head Sill

This "Cleveland" OVERHEAD DOOR CHECK can be applied to trucks now in use as well as to new trucks. The extra heavy spring checks the door easily and smoothly. Finished in Zinc or Nickel.

The CLEVELAND HARDWARE & FORGING Co.

Established 1881

3264 EAST 79th ST.

CLEVELAND, OHIO

OM QUADRUPLES TIRE LIFE AT CAMP LEE

If you owned a truck fleet that was using up thousands of irreplaceable tires, and were able in a few months, by prompt inspection and repair, to quadruple the driving life of these tires, you would undoubtedly set good tire maintenance down as a number one factor in the operation of your truck fleet.

The Army does, in the vehicles it maintains at the Quartermaster Replacement Training Center at Camp Lee, Virginia. The Quartermasters train a large share of the Army's truck drivers, as well as mechanics, laundrymen, shoe repair men, and other supply technicians at the Camp Lee replacement center, the largest station of its kind in the country. The thousands of general and special purpose vehicles used in Quartermaster training get tough and hard treatment as the new soldiers learn their work.

Before August, 1941, when the Camp Lee tire maintenance shop was set up, these vehicles averaged 7,000 miles in tire life. Today the average tire on a truck or jeep turns in around 30,000 miles before it needs a new tread. This, according to Army tire maintenance men, is the equivalent of 50,000 miles on a commercially-driven tire, the free-rolling axles of commercial trucks being considerably easier on tires than the motor-driven axles of Army vehicles.

By stretching the life of tire treads from 7,000 to 30,000 miles, the tire shop at Camp Lee saves the Army the equivalent of a half-million dollars worth of rubber a year.

The secret of this record is able direction, and a carefully executed program of tire maintenance and repair carried out under the supervision of Lt. C. S. Schaevitz, in the operations section of the motor training division, under Lt. Col. John E. Mutty. Lt. Schaevitz, who is in charge of the tire shop, ran his own tire maintenance and recapping shop at Camden, N. J., before taking up the same work for the Army. His non-commissioned staff of ten have all had a decade or more of experience, some in their own shops and some in the shops of major rubber concerns.

(TURN TO PAGE 200, PLEASE)

IF SERVICE WEAR CAUSES LOOSENESS OF THE OPERATING PARTS-USE HEAVY GREASE ON THE TOP OF YOUR 5th WHEEL PLATE! SECTION CUT AWAY TO SHOW THE SLOT FOR SHIMS- EASILY REACHED IN POCKET SHIMS CAN BE USED TO TAKE UP THE SLACK. BENEATH WHEEL PLUGS AND ALEMITE FITTINGS INSURE PROPER LUBRICATION OVER FRAME BRACKETS. ALWAYS MAKE SURE THE SAFETY LATCH IS DOWN BEFORE TRAVELLING! ... AND IF YOU DO USE A MOUNTING PLATE - AN IMPORTANT SEE YOUR A.S.F. DEALER CLEARANCE HOLE MUST BE CUT ABOUT ADJUSTMENTS AND REPLACEMENT PARTS! IN IT! MAIL COUPON TOD AMERICAN STEEL FOUNDRIES INDIANA HARBOR WORKS - EAST CHICAGO, IND. This Service Manual is available through your ASF ___ SERVICE MANUALS SEND___ NAME _ ADDRESS_ CITY -Number and type 5th Wheels -

(CONTINUED FROM PAGE 198)

The air tower method of inflation and checking used by the tire shop is quick and sure, and permits the shop operators to handle an exceptionally large volume of work. The 21 air outlets surrounding the tire shop building are arranged to allow two men to work on each vehicle at the same time. A truck company of 51 trucks formerly required two hours to "air up." By use of the air towers the job is now done in 40 minutes. With all the air towers in use, three companies comprising a total of 153 trucks can go through the inflation and checking process at the same time. This job has to be done quickly,

since more than 25,000 tires are checked and inflated each week.

The checking of the tires by the shop personnel is probably the greatest single factor in the phenomenal increase of tire life the shop has accomplished. While the truck drivers inflate the tires, the shop personnel inspect them. The non-commissioned officer in charge of inspection has the daily responsibility of calibrating all gauges, noticing any unusual loss of air in the tires, and replacing missing valve caps.

Vehicles deadlined for any of these reasons are routed into the shop. The number of tires changed, switched, or remounted in the shop is enormous, running to around 500 a week.

In addition to maintaining a continuous cycle of inspection and repair, the shop staff conduct daily classes for the truck driver trainees. The men are taught to change a tire safely, swiftly, and efficiently, to repair and change seven different vehicle types of valves, and to repair any size of tube tear. All this is the practical half of a day of tire study. Mornings are spent in the classroom observing films and demonstrations of various types of tire maintenance and repair.

Jeffers Sees Possible Truck Tire Crisis This Summer

William H. Jeffers, national rubber director, expressed himself as impressed with the manner in which the problem of the rubber shortage has been handled by the automotive industry on a recent visit to Detroit, where he conferred with the Tire Committee of the automotive and rubber industries and with officers of the Tank-Automotive Center. Viewing the outlook as hopeful, he said all the plant locations and processes to be used in the manufacture of synthetic rubber have been decided upon and the program is under way. However, due to the complicated nature of these chemical plants, it may be 12 to 15 months before the government knows where it stands on the U.S. productive capacity for synthetic rubber.

Jeffers said the critical point in the rubber inventory situation probably will be reached next November or December. After that the increasing output of synthetic rubber should build up the supply. He expects 30,000 to 40,000 tons of crude rubber to be imported this year, most of it from the Amazon basin of Brazil.

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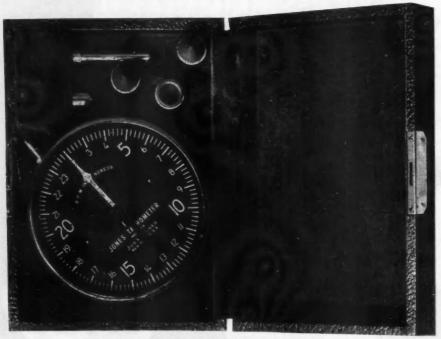
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The rubber reclaiming program is progressing well, according to the rubber director, with a two-year supply of scrap rubber on hand. This is being used at the rate of 25,000 to 27,000 tons per month, much of it for recaps that are helping save the existing rubber in tire carcasses on automobiles. The only synthetic rubber being used in passenger car tires is for test purposes. Jeffers viewed the outlook for truck tires as more critical than for passenger car tires. The severe winter weather has caused many chuck holes in the highways and this has been especially hard on truck tires carrying heavy loads of war materials. Some crude rubber must be diverted for truck tire manufacture because reclaim alone will not stand up. The truck tire situation may reach a crisis this summer.

Jeffers said he found the public generally anxious to conform to the rules that have been invoked in the interests of conserving rubber. He could see no need for changing the regulations on mileage rationing in states where gasoline is plentiful. However, restrictions on speed must be watched closely so there will be no flagrant waste of rubber by fast driving. By and large, the speed limitations have been well observed. It may be possible to further relax the rules on tire inspections due to public conformance, according to Jeffers.

ARE YOUR TRUCKS IN CONDITION?



THEY MUST KEEP ROLLING . . .

because they are vital to the war effort. They belong to you, but their life is important to all of us.

JONES PORTABLE TACHOMETER

Used by: Atlantic Refining Co. Autoear Commany Breekway Treeks Dairyman's League International Harveste

Keeshin Motor Express Mack Trucks Shell Union Oil Corp. Secony-Vacuum Oil Co. Standard Oil Co. of New Jersey

Standard Oil Co. of La. The White Company Tide Water Associated Oil Co.

J. S. Army Air Corps U. S. Navy

makes it possible, in these days of manpower shortage, to give your trucks more frequent scientific check-ups with less help.

Being portable it saves time; makes inspections quickly and inexpensively; takes accurate engine readings instantly either from the end of the crankshaft, or against the end of the generator or other revolving shaft without the use of a stop watch, thus making it possible to adjust governors and carburetors and do other trouble shooting without the necessity of road tests.

Speed ranges are available as follows: 100-1200

500-2500 300-3600 350-4000 400-4800 1000- 5000 200-2400 1000-10000 Keep your trucks fit. Use a Jones Portable Tachometer to "Keep 'em rolling" for Victory.

Write today for complete information

JONES-MOTROLA SALES CO.

432 Fairfield Avenue

STAMFORD, CONN.

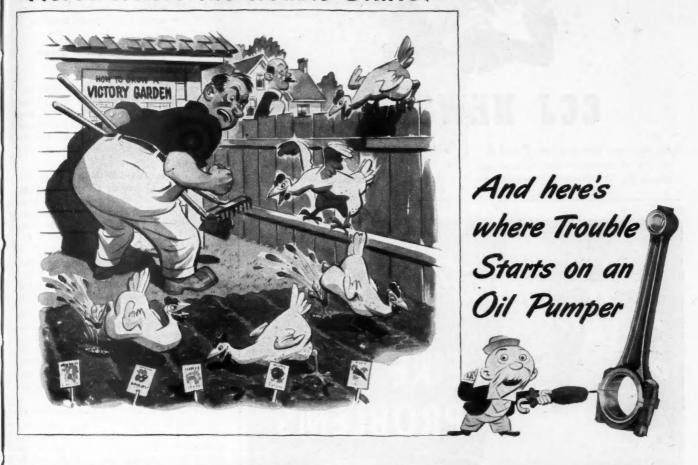
Here's Where the Trouble Starts!

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TO KEEP AMERICAN INDUSTRY IN ACTION

It is vitally important now that oil pumpers, wasting fuel, and needlessly wearing out metal parts, be reconditioned to restore operating economy and to protect the engine from more serious damage. Correction starts where the trouble starts—at worn engine bearings. Worn bearings flood combustion chambers with oil. It burns to carbon, coating the pistons, rings, spark plugs and valves and can render the best of new rings ineffective. Left in service, worn bearings may seriously damage the crankshaft. Replace them to restore power and economy, to protect hard-to-get engine parts.

Every bearing part you use for such replacement is made from scarce, strategic or critical metals. It is difficult to keep stocks readily available. However, automotive transportation is recognized as a vital national requirement and we are doing all possible to keep needed engine bearing parts quickly available and continue to justify your dependence upon us as a reliable source of supply.

Your Jobber and the nation-wide network of Federal-Mogul branches and bearing reconditioning plants stand back of you to help you keep American industry in action!

FEDERAL-MOGUL CORPORATION

DETROIT, MICHIGAN



FOR VICTORY

Submarine engines, submarine tenders are equipped with Federal-Mogul bearings and other precision parts, as are planes, tanks, guns, trucks, armament-making machinery. Federal-Mogul's expanded factories work "all out" for victory—and continue producing millions of bearings to service the cars carrying war workers and materials to their jobs. We "keep 'em rolling"!

WORN ENGINE BEARINGS CAUSE OIL PUMPING





NEWSCAST

SAE National Meeting May 5 and 6

Society of Automotive Engineers has announced the SAE National Transportation

and Maintenance Meeting for May 5 and 6 in the Hotel Pennsylvania, New York. Preliminary program calls for presentation of a series of papers on the techniques of wartime maintenance of commercial motor vehicles, including metal spraying and cold welding, a recent development which has aroused widespread interest.

Fred T. Macrae, Jr., White Truck Vice-President, Dies

Fred T. Macrae, Jr., executive vice-president of The White Motor Co. and a leading figure in war production activities, died at St. Luke's Hospital, Cleveland, March 3, following a two-week's illness. Had he lived another day he would have been 50 vears of age.

Mr. Macrae started in the truck business at the age of 17 directly after leaving high school. He was with Autocar Co. from 1912 to 1914; then served as vice-president of the Federal Truck Co of Newark from 1914 to 1917. He was president of the Rice-Macrae Motor Truck Co. from 1917 to 1927, and president of the Day-Elder Truck Co. from 1927 until he joined White in 1935 as vice-president. He was named executive vice-president of White in 1940.

During his connection with White, Mr. Macrae was in charge of manufacturing operations and was largely responsible for the modernization of the company's production equipment and manufacturing methods. He was vice-chairman of the Ordnance Department's Half-Trac Integrating Committee.

Fred, as he was affectionately known to his hundreds of friends in the truck industry, was a hard worker and a sincere, sympathetic individual, always ready to lend a helping hand. The inspiration which he gave his associates at White Motor and the men he worked with on committees will be sorely missed.

Just as energetic in sports as in his work, Fred was an enthusiastic golfer, tennis player, and bowler. He was a member of the Cleveland Club and the Shaker Heights Country Club. He lived at 16520 South Woodland Road, Shaker Heights, Ohio.

Surviving are his widow, Florence Kaiser Macrae; two sons, Robert Bruce and Donald Allan; a daughter, June Louise; a sister, Florence Macrae Allen of

(TURN TO PAGE 204, PLEASE)

n



Fred T. Macrae, Jr.



2 ALWAYS USE Heat Resisting TIRE VALVE SEALS

No. 100-BB VALVE INSIDE **Heat-Resisting** Rubber Seal



No. 664 VALVE CAP **Heat-Resisting** Rubber Seal

Operating delays, tire wear, and service cost difficulties based on hot tires, can be substantially reduced by following two firm rules-(1) Never bleed tires—tire heat is caused by tire flexing. Bleeding tires increases flexing and heat. (2) Heat is destructive to ordinary valve seals. Equip all tires with heat-resisting valve insides and caps to maintain airtight valves and prevent tire pressure loss. They cost no more and give longer and better protection. Get them from your jobber or tire dealer, today.

THE DILL MANUFACTURING COMPANY

700 E. 82nd St., Cleveland, Ohio

. Los Angeles . Detroit . Toronto

SAVE RUBBER for VITAL WAR

Heat-Resisting VALVE CAPS AND INSIDES



ONLY THE BEST IS GOOD ENOUGH for Backer-uppers!

Vital to our backing-up of the front lines is the mechanical condition of the trucks, buses and cars that are hauling for Victory. Only the best lubrication you can furnish will make these units last their longest, by providing their engine parts with the maximum of protection against unnecessary wear. That means the best oil money can buy!

How can you know which oil is best? You can't run laboratory tests. . . . You don't want to rely on opinion, or put your faith in mere claims. . . . And you don't have to! You can be guided by oil users who buy on facts—without favor or prejudice.

Consider: Many leading airplane engine manufacturers use Wolf's Head for their testing and break-in runs. Pan

American has used Wolf's Head in the Clippers for over 14 years—more than ONE BILLION passenger-miles. And Wolf's Head has been shipped all around the world for use in United Nations' planes. Big-fleet operators become Wolf's Head boosters as their actual records prove the benefit—the real engine conservation—they get from Wolf's Head.

Now available: Wolf's Head HEAVY DUTY Oil, made especially for severe heavy duty service. 100% Pennsylvania, engineered for highest stability and detergency. Proven best by field and lab tests! Get the facts, in the free booklet, "Heavy Duty Maintenance." Send a card or letter for it today. Wolf's Head Oil Refining Co., Oil City, Pa., or 51 Madison Ave., New York, N. Y.

WOLF'S HEAD

100% PENNSYLVANIA (MILEMAN) P.G.C.O.A. Permit No. 6



CCJ NEWSCAST

(CONTINUED FROM PAGE 202)

Carmel-by-the-Sea, California; and his father, Fred T. Macrae who lived with him.

The sympathy of the entire truck industry goes to his survivors. Those who have known him and worked with him will miss him greatly.

U.S.E. Not to Transfer Truck Drivers or Mechanics

U. S. Employment offices were instructed by the War Manpower Commission not to

attempt to transfer truck drivers and maintenance mechanics employed by distributors of fuel oils and solid fuels to war industries or other essential jobs.

Although fuel distribution is not on the official national WMC List of Essential Activities, fuel shortages in some parts of the country, which have been aggravated by lack of drivers and mechanics, prompted the Commission to take this action, WMC Chairman, Paul V. McNutt, said.

At the same time Mr. McNutt also instructed U. S. Employment offices to refrain from urging the transfer to any other jobs of truck drivers and maintenance mechanics employed by trucking companies and garages, provided these workers are engaged in service for essential activities.

Three More Joint Action Plans Approved by ODT

Three joint action plans for the conservation of trucks, tires and equipment were approved by the ODT on March 17.

The first plan was submitted by 19 independent refuse collectors of Old Greenwich, Conn.; the second by 22 retail milk distributors operating in the Auburn Milk Marketing area of New York, and the third by 37 retail milk distributors in the Albany Milk Marketing Area of New York.

Under the first plan, the refuse collectors agree to eliminate their duplicating services, which on some streets has resulted in four or five houses being served by as many as three trucks, through an even exchange of customers. No increase in rates will result and there will be no curtailment of service available to householders as a result of the plan.

The second plan provides for everyother-day retail milk deliveries in the Auburn area, and for retail deliveries to start at 7:30 a.m. "Outlying" wholesale customers will be exchanged among the 22 participants in order to reduce the mileage operated by their trucks.

The third plan is similar to the second, except that retail deliveries will begin at 7 a.m. and that retail customers may also be exchanged. Neither plan will affect the milk price structure in the areas covered.

Oil Industry Seeks Gas Rise and Changes in Certain Regulations

A resolution calling for a one cent per gallon increase in the retail price of gasoline was passed by members of the Petroleum Industry War Council at the March meeting, William R. Boyd, Jr., chairman, disclosed. The resolution has been forwarded to Petroleum Administrator Harold S. Ickes.

The principal reason given in support of the petition was that gasoline rationing (TURN TO PAGE 206, PLEASE)



Appointment of A. N.
Morton as production manager of the
Mack company's
three large plants
has been announced
by Charles T. Ruhf,
president of Mack
Monufacturing Corp.
and executive vicepresident of the parent company, Mack
Truke. Inc.



William S. Newell has been appointed to the board of directors of Mack Trucks, Inc., according to a nouncement by Louis G. Bissell, chairman of the Mack board. Mr. Newell is president of Todd - Bath I ro n Shipbuilding Corp. and president of Bath Iron Works.



DOES A BETTER JOB AND SAVES THE FINISH

Durable protective bumper all around the edge.



Speed-Wash fountain brushes are used in scores of commercial fields. Users include: Southwestern Greyhound Lines, Kroger Grocery and Baking Co., Shell Oil Co., Coca Cola Co., United Parcel Service.



Tufes are hand drawn with rust proof wire.

Connects with any standard size hose coupling.



Handle is light weigh electric weld ed steel tube



Eight evenly spaced jets provide a steady stream of clean water.



Brush is easily detachable from handle, economical to renew. ADDING the Speed-Wash to your washing equipment is like hiring another man — WITHOUT PAY.

It's an actual fact, proved in hundreds of cases, that the Speed-Wash cuts wash job time between 40 and 60 per cent. Here's the reason: One man does the complete work of soaking, scrubbing and rinsing in ONE operation — without changing tools and without interruption. The ease with which these three jobs are done together allows the Speed-Wash to be a man-sized tool, cleaning a 12" path with each stroke.

Unique Construction For Faster, Better Work and Longer Life

The Speed-Wash fountain brush is made with first quality horsehair tufts that are hand drawn into the block with rust proof wire. They cannot come out or come loose. Eight evenly spaced jets provide a steady stream of clean, fresh water. Tufts are always clean and free from grit. Sturdy bumper protects against marring finish. Brush is detathable from the handle and renewable at low cost. Handle is an electric-welded steel tube which weighs about the same as aluminum. Handle socket is at one end and standard hose connection at the other.

Order today. Priority rating of A-10 or better will insure prompt delivery. Send check or money order to...

MILWAUKEE DUSTLESS BRUSH CO.
526 N. 22ND STREET MILWAUKEE, WIS.



WHEN A FELLER NEEDS A FISK

No matter how important your war load may be, you can't fight your way through tire trouble; nor can you afford to guess at the condition of your tires. The more urgent your pay loads, the more you need a Fisk Tire expert.

Free Certificate Holder



Also includes space for entering the information needed every day for your "Certificate of War Necessity". Get one for each of your trucks from any Fisk Truck Tire Distributor.

Fisk Distributors are known for the thoroughness of their truck tire service. The Fisk Preventive Maintenance Plan has saved thousands of vital hours for war industries and thousands of dollars for the fleets that move their materials.

Ask any Fisk Distributor about the Fisk Preventive Maintenance Plan. Whether it's time to repair, time to recap, or "Time to Re-Tire," follow the sign of the Fisk Boy to save money, time and trouble.



SEE YOUR

Division of UNITED STATES RUBBER COMPANY

CCJ NEWSCAST

(CONTINUED FROM PAGE 204)

has increased operating costs because of the reduction in the volume of sales and the added expense of handling ration coupons. Higher labor costs and a general increase in overhead were additional reasons given in support of the plea.

To check an inevitable storm of protests from consumers and to insure favorable consideration, the resolution cited OPA's recent approval of a 3/10-cent increase per gallon in fuel oil prices, plea for which

also was based on increased costs due to rationing.

In addition to requesting the price increase, the War Council's resolution included several recommendations, as follows:

1. That not more than half of the onecent increase should be allocated to the jobbers.

2. That the Petroleum Administrator direct the oil industry to campaign for the removal of unnecessary traffic lights, stop signs, prohibitions against left turns and U-turns, as well as other regulations wasteful of gasoline and tires. In this respect the council declared that needless traffic regulations could waste as much as 20 per

C. L. Cummins, founder-president of Cummins Engine Com-pany of Columbus, Ina, manufacturers gines, has been apd Executive Consultant on Diesel Engine Production to War Production Board, with headquarters in Washington, D. C.



cent of the total gasoline consumption. Rationing, it was pointed out, has caused so great a decline in traffic that many of the once necessary regulations for traffic control now are unnecessary.

3. That the Petroleum Administrator convince the OPA of the urgent necessity for additional gasoline rations for the field men in the distribution branch of the industry.

4. That local ration and selective service boards be instructed as to the essential nature of the work being done by the distribution branch of the industry.

South Dakota Raises Truck Weight Limits

South Dakota Legislature passed a bill increasing the state's limitations on the length and weight of trucks. The measure increases maximum lengths from 30 to 35 ft. for single vehicles and from 40 to 45 ft. for combination units such as semitrailers and trailers.

Weight limits have been raised from 24,000 to 30,000 lb. for trucks and from 30,000 to 40,000 lb. for combinations.

48-Hr. Week Order Affects 32 Areas

Regulations issued by Chairman Paul V. McNutt of the War Manpower Commission to govern the application of the 48hour week called for by the President, will, with some exceptions, affect all employers of eight or more persons in 32 designated areas, whose production can be increased by a longer week or who can maintain their production with fewer men.

The exact boundaries of these areas will be fixed by the regional directors of the WMC in the various localities. Regional and area directors are authorized to consider a minimum work week of less than 48 hours when a full 48-hour week would neither increase production, release workers for other employment, nor otherwise further the war effort.

(TURN TO PAGE 208, PLEASE)



The Pennsylvania Rubber Co. announced ointment of the appointmen as Assistant Sales Manager H nager. He was previously associated with Cities Service Oii Co. (Del.) at Tulsa and Chicago for the past 14 years

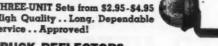
ULSF

'Standard Equipment Where QUALITY Rules"



* TRUCK FLARES

THREE-UNIT Sets from \$2,95-\$4,95 High Quality..Long. Dependable Service . . Approved!



TRUCK REFLECTORS

Approved! 200% in excess of SAE requirements. Rust-resistant Frame. Reflector set in asphalt.

TRUCK MIRRORS

FUL-VUE . . "Floats in Rubber" Mount. From \$1.95 to \$3.75. Rust-Resistant. Offset Mirror Head — offering wider range of view. Adjustable to 33½ inches. Body or Hinge Mounting. Also replacement heads for Ford and Chevrolet.



Approved! Rust-Resistant. Genuine Mazda Bulbs. Illuminated Tel-Tale Switch, Sets. \$6.95 Up.



* TRUCK MARKER and CLEARANCE LIGHTS

A full line of Marker and Clearance Lights. Streamline Aluminum Finish. Heavy frames. Genuine Mazda Bulbs. Finest quality glass. Self-tapping metal screws packed with lights for installing. Standard prices.

Insist upon "Bolser" . . . See Your Jobber-



THE BOLSER CORPORATION CEDAR FALLS, IOWA, U.S.A.





at the ''Keep 'Em Rolling'' rally in Philadelphia were S. F. Niness, president of PMTA, Joseph B. Eastman, Edward Crumbock and Ted V. Rodgers. See article at right





WAR materials! There must be no de-lays in getting them to the fighting fronts. Many lives might be lost just because some small part failed.

Don't take chances! When making ignition parts replacements, play safe. Use "Blue Streak." the time-tested line known the world over for its "long-life peak performance." Built with that extra margin of wear-resistance that assures dependable service.

For the sake of human lives—and your own reputation - replace with "Blue Streak."

STANDARD MOTOR PRODUCTS, INC. 37-46 Northern Blvd., Long Island City, N. Y.

"The ABILITY to serve well is as important as the WILL to do so."

CCJ NEWSCAST

(CONTINUED FROM PAGE 206)

Labor Should "Clean House" Advises Eastman at PMTA Rally

Speaking at a "Keep 'Em Rolling" rally in Philadelphia, attended by 1500 truck operators, drivers, helpers, mechanics, union and government transportation officials, John B. Eastman, Director, Office of Defense Transportation said that he detected signs of public reaction against labor unions.

"There is no better breeding time for such reactions than wartime," he added. "Practices which the public will overlook in normal times, it will not overlook in days of war.

People will resent it bitterly if they come to the opinion that the unions are placing their own special welfare ahead of their country's welfare."

Mr. Eastman advised that labor's "house-

cleaning" should be done by labor itself. Other speakers were Ted V. Rodgers, president, American Trucking Association. He urged truck operators and drivers to impress on draft boards the importance of keeping men engaged in the transportation industry in their jobs in the interest of moving essential war goods without delavs.

Edward Crumbock, national vice-president of the International Brotherhood of Teamsters and secretary-treasurer of Local 107, urged greater efforts to conserve tires and gas.

The meeting was sponsored by the Philadelphia Chapter, Pennsylvania Motor Truck Assn. and Joint Council 53 of the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America, AFL.

Arrow Doubles Plant Space

Unable to keep up with the mounting demand for auxiliary lighting equipment, Arrow Safety Device Co., has found it necessary to expand beyond its present facilities in Medford, N. J. The new plant will be in Mt. Holly, N. J., which is out of the congested war production centers.

The unprecedented demand for the turnsignals, stop lights, parking lights, sealed beam headlamps and other auxiliary lighting products for cars, trucks and buses is partly due to high priority orders for equipping Army and Navy vehicles, but much of it also emanates from normal trade channels.

Art Graham Rejoins Grizzly

To enable him to rejoin Grizzly Mfg. Co. in his former capacity of service engineer, Art Graham has just received his honorable discharge from the U.S. Army. He served in the armed forces about one year. His release permits him now to resume, throughout his old West Coast territory, the important work of helping to keep vital automotive transportation rolling.

(TURN TO PAGE 256, PLEASE)



GOTTA KEEP "In Condition"

• Those Allied invaders must "give it and take it" in rough and tumble hand-to-hand fighting. They can because they get no end of rigid, specialized conditioning. And if your trucks are to take a hand in winning this war-by staying in service -they must be "In Condition," too. So, set up a more rigid schedule and a more thorough procedure of conditioning to make your trucks last. Make full use of the service equipment you have. Put your DeVilbiss Spray-Painting Equipment on a regular work shift-to stop destructive rust attacks on body and chassis parts-to keep your trucks looking fit.

And remember, your equipment has to last a long time, too-so take care of it. Find out what you can do to keep its performance up to par. Your DeVilbiss distributor will gladly show you-at no cost.

DEVILBISS COMPANY . TOLEDO, OHIO Canadian Plant: WINDSOR, ONTARIO



PROUD to have won the coveted Army-Navy "E" for excellence in war production, the men and women of DeVilbiss pledge to continue giving their all-out best-for Victory.

F VILBIS.

SPRAY SYSTEMS



AY EQUIPMENT . EXHAUST SYSTEMS . AIR COMPRESSORS . HOSE AND CONNECTIONS

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WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 102)

takes on new significance. It is not likely that ODT will get all the money it has asked for—and the amount it has asked made no provision for handling used-truck rationing. It well may be that ODT will be compelled to revise its setup July 1, the beginning of the new budget year.

100,000 Idle Trucks

Another reason why ODT decided to steer clear of used trucks might be its discovery that there are around 100,000 idle trucks in the United States. This condition was uncovered by the idle equipment reports. It is admitted that many of these vehicles are in the light truck class but it is also known that a considerable number of them are in the $1\frac{1}{2}$ -ton and up class, in which ODT has a fatherly interest.

Tank Truck Freeze

One freeze, however, that is definitely in the offing is a freeze of tank trucks used in the dairy industry. More lucrative business in other industries needing tank trucks has caused migration from the dairy field and dairy interests are fearful that a serious situation may develop. The form of the "freeze" is under discussion. WPB is said to favor requisitioning of the tank trucks.

WPB Poops on Pool

How many trucks are left in the new truck rationing pool? The automotive division of WPB issued a publicity release saying that as of March 10, 1943, "we have exactly 57,573 commercial vehicles left in our reserve." This figure, said WPB, "includes light, medium and heavy trucks, trailers and third axle attachments." The statement was no sooner out than WPB had its ears pinned back by automotive interests that have kept tabs on rationing statistics. These interests confronted WPB with its own statistics, which showed that there were 82,525 trucks in the reserve pool. In addition, it was asserted, that there were 6000 trailers and several hundred third axle units in the reserve. The question arises, was WPB trying to create a false impression or did some one make an honest mistake in simple arithmetic? One explanation is that WPB had the right figures all the time but worded its public statement improperly. The statement should have made it clear that WPB was talking only about the reserve available to civilian users. The vehicles not counted in the 57,-573 vehicles are understood to be earmarked for government agencies.

Bureaucratic Overlap

The more one hears about the overlapping of Federal departments, bureaus and agencies in transportation matters the more one wonders about the official status of the Office of Defense Transportation. Last month we reported that a study by ODT showed 26 other Federal agencies overlap ODT in transportation matters. Since then we have been informed by hearsay that a study made by another body showed that 60 agencies were concerned in transportation affairs. Whether 26 or 60 the duplication of effort in Fed-

(TURN TO PAGE 212, PLEASE)

WEIDENHOFF

Automotive-Aviation
SERVICE EQUIPMEN

The All-American Line-Up---

Generator, Starter and Magneto Test
Renches

For bench testing all types of passenger cars and commercial vehicle generators and voltage regulators. Several models from which to choose. Capable of handling largest truck, bus and aircraft generators. Starting motors tested for free running and locked torque for electrical resistance and mechanical condition. Magneto test fixture available at purchaser's option.

• Cyclone Battery Charger -

A compact, portable unit for fast battery charging. Built-in analyzer gives immediate and accurate indications of battery condition. Four scales on meter. Meter can be used without interfering with charger operation.

• Constant Potential Battery Charger -

A highly efficient motor—generator set which can be had with or without charging panel. As many batteries may be placed on the charge panel as desired providing total charge rate of all batteries is within full output of generator.

Distrib-U-Scope -

This precision engineered and built unit affords a complete picture of ignition distributor performance at a glance. No meters to read. Checks for correct cam angle, governor advance, vacuum control, breaker point condition, etc.

Magnetizer —

A comprehensive unit for charging most types of magneto magnets including two, four and eight pole rotors of revolving magnet type magnetos.

Engine Analyzers —

Engine analyzers and testers to fill every need. Compact, portable sets for

individual mechanie. Complete deluxe tune-up equipment also available.

• Ignition Coil Tester -

Designed to test a coil completely on or off motor vehicle—hot or cold. Tests high and low speed conditions, insulation for leakage, continuity and "opens" in primary and secondary.

Condenser and Resistance Tester—Complete tests of all condenser conditions. Also tests for shorts, breakdown, leakage and series resistance. Ideal for checking fuel gauge, radio antennae and other electrical devices.

• Ammeter, Voltmeter and Rheostat —
Incorporates an ammeter and voltmeter plus variable resistances with ability to carry ample current. Ideal for checking voltage and current regulators.

 Vacuum, Compression and Fuel Pump Tester —

Edge type vacuum and compression gauges. Low reading pressure gauge for fuel pump test, muffler back pressure. etc.

• Exhaust Analyzer -

A means of accurately and quickly determining carburetion condition. Portability of unit permits removal from cabinet for road testing.

Blectronic Tachometer —

A precision unit which has many and varied uses in engine tune-up work. Precise calibration accomplished by use of a synchronous motor. Ideal for synchronizing dual carburetors, and other factors effecting engine performance.

Write for Particulars



Buy More War Bonds

JOSEPH WEIDENHOFF, INC. CHICAGO, ILLINOIS

Old Wobbly Legs Himself. PULLEY MISALIGNMENT

and 10 Other Reasons for Belt Failure
Walk Right Out of the Pages of
DAYTON'S BELT SERVICE MANUAL

Pulley misalignment isn't funny! Neither are any of the 10 other reasons for premature and preventable Fan Belt failure uncovered by Dayton's engineers during 30 years of Preventive Maintenance field study. That's why the results of this study and the solutions to these problems are available to Bus and Fleet Owners in the concise and graphic form of DAYTON'S BELT SERVICE MANUAL. In its pages are brought vividly to life the causes, the diagnoses, and the remedies for costly and needless belt failure.

Without obligation write for this interesting, instructive and valuable Belt Service Manual and information about Dayton's FREE FLEET SURVEY of Fan Belts and Accessory Drives.

THE DAYTON RUBBER MFG. CO. DAYTON, OHIO

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U.S. TRUCK
CONSERVATION CORPS

THROW <u>YOUR</u> SCRAP INTO THE FIGHT!

> BUY WAR BONDS AND SAVINGS STAMPS

Dayton
THE GREATEST NAME IN FAN BELTS

85% Original Equipment on all American Makes of Cars
WORLD'S LARGEST MANUFACTURER OF V-BELTS

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ıt

WASHINGTON

(CONTINUED FROM PAGE 210)

eral circles must be tremendous at a time like the present when transportation presents a multiplicity of problems and becomes a matter of widespread concern. And the duplication will doubtless continue until some one with the broad and definite powers of E c o n o m i c Stabilizer Byrnes puts a stop to it. It is under-

stood that ODT has brought the overlapping to official attention. A civilian move is now afoot to protest the overlapping as causing too much duplication of paper work by business which, as always, bears the brunt of bureaucratic inefficiency.

Potential Battle Royal

A report that must have disturbed the ODT hierarchy into threealarm activity was current in the capital and was to the effect that the Department of Agriculture was initiating steps to take jurisdiction over all transportation—rail, truck and water—used in the movement of agricultural products. There were those who hoped that the report was not without foundation as it might serve as the precipitant to clarify ODT's peculiar position among the Administration's alphabetical galaxy.

Manhandling Manpower

The Number 1 problem among truck operators is manpower. The efforts of the War Manpower Commission, the U.S. Employment Service and the Selective Service Administration have alternately raised and dashed the hopes of operators so that now every official pronouncement is greeted with skepticism. To cap the confused situation is the attitude of local draft boards which are a law unto themselves and ignore directives and instructions as if they had never been issued. Manpower Manhandler McNutt muddied the waters with his fine Hoosier hand around the first day of Spring when he contradicted a previous War Manpower Commission statement which had placed all truck drivers and mechanics in the list of essential activities. McNutt tossed everything into turmoil when he said that the driving or repair of a truck not related to the war effort is not an essential activity. If that instruction stands the deferment of each driver and mechanic becomes a separate problem for the employer and the task that confronts him can be imagined.

Wooing Wrench-Wenches

The efforts to solve the manpower shortage with women are well-intentioned but they seem to ignore practical considerations. Telling truck operators that women can do the jobs of men and urging that they be hired and trained does not begin to solve the problem. The operator who trains them has no assurance that they will remain after they have been trained. In fact, there is overwhelming evidence that automotive shops, so far as wrench-wenches are concerned, are but stepping stones in the direction of more lucrative warplant jobs in surroundings that are undoultedly more attractive. Not until this phase of the problem is solved will operators woo the women with any degree of platonic passion.

At Last! The Mystery of Abnormal Tire-Wear Solved!

The Secret Lies in CHECKING WHEEL-ROLL With the Vehicle IN MOTION AND UNDER LOAD

Practically every truck operator has had the dismaying experience of seeing certain tires wear rapidly down to the fabric despite the fact that the wheel alignment tested perfect by all of the common checking methods.

What the truck operator overlooked was that there is a vast difference between perfect alignment when the wheels are standing still and perfect alignment when the wheels are traveling along the highway, with the vehicle under load.

A vehicle in motion brings into play a number of troublesome factors that are not disclosed by any alignment instrument of any type when the vehicle is at rest. And if, in addition, the vehicle is under load, any misadjustments that may exist in the chassis mechanism become greatly aggravated when the parts are under stress and strain.

The result is that the wheels, instead of rolling in a straight-ahead direction, parallel to the course of the vehicle, actually run at a tangent to



the straight-ahead course, dragging the tires sideways and grinding off precious rubber at a rate that is often terrific.

Where the Micro-Linor Comes In!

By checking the wheel-roll while the vehicle is in motion and under load, the Micro-Linor quickly discloses whether there are any defects or misadjustments in the chassis mechanism which are subjecting the tires to abnormal wear. If such a condition exists, the Micro-Linor dial spots it immediately.

Whatever the cause, it can be quickly located by referring to a Micro-Linor ANALYSIS CHART which indicates where to look for the particular defective part of particular misadjustment that is the seat of the trouble. Investigate this modern method of tire conservation—proven successful by leading fleet owners throughout the nation.





Stop Tire Wear Before it Starts!